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The Biological Review of Ontario.

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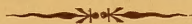
We will always be glad to answer in our columns any questions relating to the Natural History of our Province, and to identify any specimens which may be sent to us.

The membership fee of the Biological Society of Ontario is two dollars per annum, which entitles each to one copy of THE REVIEW.

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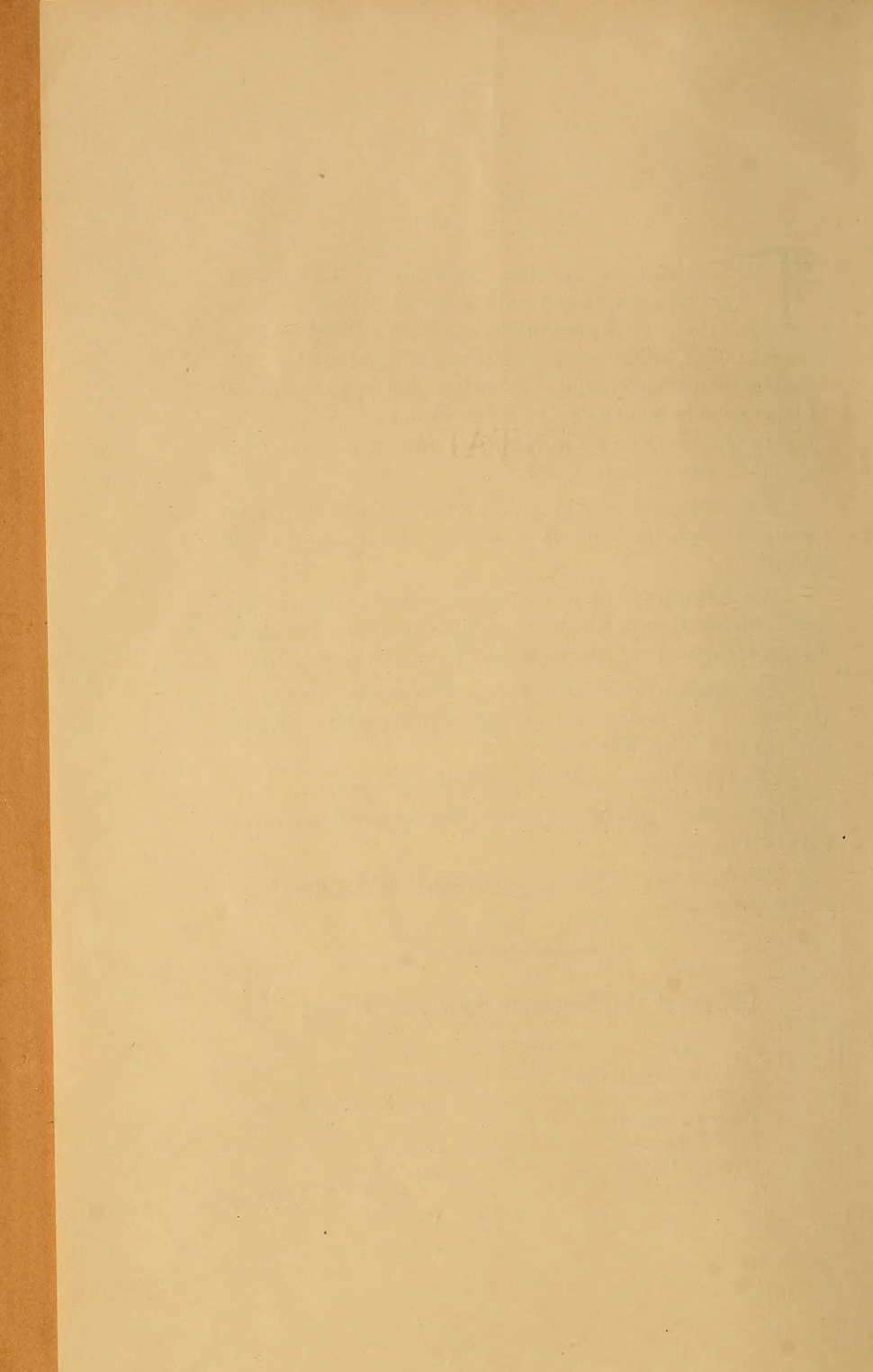


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THE BIOLOGICAL REVIEW OF ONTARIO.

VOL. I.

TORONTO, JANUARY, 1894.

NO. I.

THE JOURNALISTIC field in Canada is a well cultivated one; nearly every profession and calling is represented within its bounds.

There is, however, one important department of science unrepresented in Ontario, and that is General Biology, the science of life forms; and it is with a view of supplying this desideratum that the BIOLOGICAL REVIEW OF ONTARIO is launched.

Speaking in more particular terms, the objects of the publishers of THE REVIEW are, the collection and publication of important original observations relating to the fauna and flora, existing and extinct, of the Province of Ontario; to determine the life histories of all native specific life forms, and from time to time publish monographs of the same; and to compile and publish a bibliography of all literature relating to native life forms from Canadian publications.

While the main purpose of THE REVIEW is the furtherance of Biological science in general, in our Province, there are many practical applications of the science to which we purpose devoting special attention.

One of these is the relation of insect and other life forms, injurious or beneficial, to forest trees, cultivated crops, and to

domestic animals; another is the culture of our native food fishes, and the introduction and acclimatization of useful foreign species. Both of these come into touch with our daily life and business, and are of very great commercial importance.

The part, whether beneficial or otherwise, that the many and varied forms of life play in the production of the fruits of the earth is yet to a great extent unknown; much as science has already done in this respect, much remains to do, and the possibilities of the rewards which Nature still has hid in her lap for the student who patiently sits at her feet questioning, is an incentive too powerful to be resisted.

To aid us in the attainment of the object indicated, we have enlisted the co-operation of a number of competent observers residing in different parts of the Province, who report, from time to time, such records as are deemed worthy of publication.

This staff of co-workers will be enlarged as opportunities afford, and we shall always be glad to receive contributions of records and of specimens from all who take an interest in the study of life forms.

ON THE OCCURRENCE OF *URIA LOMVIA* ON LAKE ONTARIO.

ON NOVEMBER 29, 1893, Mr. O. Spanner received a specimen of this Guillemot, taken on Toronto Bay by Mr. Curtis. The bird was in good condition, and had pitched among some decoy ducks, near the eastern gap.

On December 7, a flock pitched on the lake shore of Ash-bridge bar, in shelter of the breakwater. Mr. Curtis secured four out of this flock, two of which he sold to Mr. Jacobs and two to Mr. Spanner.

On December 8-9, almost every hunter around the bay observed or secured Guillemots. Upwards of twenty-eight were taken on these two days; Mr. Curtis shot six, Mr. McDonald four. Mr. J. Stairs took three off the western bar, and Mr. W. McKay one. Mr. C. Nurse secured one on Humber

Bay. Two by George Webb and one by Mr. Bunker were taken on the western bar. Mr. J. Maughan, Jr., received two from unknown parties.

On the latter date Mr. S. Dippie secured one off Kew Beach, but did not keep it. Mr. J. Goodwin picked up a dead one on the island. Mr. George Hope received one, and Campion Bros. two, all taken off the western bar, and George Ward shot one near the eastern gap.

On December 11, Mr. Curtis secured three specimens, two of which he sold to Mr. Jacobs and one to Mr. Spanner.

On December 12, Mr. McDonald secured one, which he sold to Mr. Spanner.

On December 13, Mr. Curtis took another to Mr. Spanner.

On December 16, Mr. Montgomery picked up a dead bird in rear of his house on the bar, and handed it to Mr. Nelson.

On December 29, Mr. J. Maughan received one. This is the last report, but the bird is said to have been shot some time before.

As far as I can learn, thirty-six were taken at Toronto.

The condition of the birds was good in most cases, but the last birds taken were poor.

An examination of some twenty-eight stomachs revealed no traces of food, though they had evidently not been empty long.

Three only of the stomachs contained a few small pieces of slate or gravel.

The sexual organs were unrecognizable in about four to one of the specimens, and of the others the number of males and females was about equal.

The plumage of the birds varied considerably, some being pure white all up the neck and throat, and jet black on the back of the neck and head; while others were duller on the back of the head and mixed with black on the throat, and a few were black all round the throat and neck; these latter were the smaller specimens, and probably younger birds.

All the birds were taken within 150 yards of the shore, and were very restless and seemed dissatisfied with the condition of things.

They were exceedingly tame, and could be approached to within a very few yards.

The following table gives measurements of twenty-one specimens examined by myself :

Length.	Wing.	Culmen.	Depth of bill at angle.	Gonys.	Tarsus.	Length.	Wing.	Culmen.	Depth of bill at angle.	Gonys.	Tarsus.
15.75	8.37	1.06	.44	.75	1.44	15.25	8.25	1.00	.37	.75	1.31
15.75	8.37	1.00	.44	.75	1.44	16.00	8.00	.....	.....	.....	1.25
16.00	8.00	1.00	.37	.75	1.37	16.00	8.00	.....	.....	.....	1.25
16.00	8.00	1.00	.44	.75	1.25	16.00	8.00	.87	.44	.75	1.25
.....	8.25	1.00	.37	.62	1.37	.....	8.00	.87	.44	.75	1.12
.....	8.00	1.00	.44	.75	1.37	15.25	7.87	1.00	.37	.75	1.37
16.00	8.00	1.00	.37	.75	1.25	15.50	7.75	.87	.44	.62	1.37
.....	8.00	1.00	.44	.75	1.25	.....	8.00	.87	.37	.75	1.25
.....	8.00	1.00	.44	.75	1.25	15.12	7.62	.87	.44	.62	1.37
.....	8.00	1.00	.44	.75	1.25	.....	8.00	.81	.37	.75	1.25
15.87	8.25	.87	.37	.75	1.37						

The following are statements made by those who shot most of the birds, and had probably the best opportunity to note their habits while they were here.

Mr. Wm. Montgomery observes as follows :

"I saw the first bird shot by Mr. Curtis; I had never seen a bird like it before, though I have lived on the bar for about twenty-four years.

"About a week afterwards a flock of five pitched in a small gap in the ice, and C. Curtis secured four of them. The two days following were raw and cold, but all day long small flocks were seen flying westward.

"They seemed very restless, and would pitch every few hundred yards and rise again, always flying westward. I did not see any flying east or south; they were all within one hundred yards of shore.

"On Saturday morning, December 9, a flock of about fifteen pitched in a small bay in the ice directly behind our house, and I was within a few yards of them, but they took no notice of me; they huddled close together as though seeking shelter from the strong north-west wind, which was blowing for the three days they were so numerous.

"I did not disturb them, and they remained there nearly all day.

"A few days afterwards they all disappeared, but on December 16, I picked up a dead one and gave it to Mr. Nelson ; this was the last I saw or heard of them.

"As to the report of their being out in the lake, I can say that we are out about seven miles in the lake three times every week, and I have never observed a Guillemot more than one hundred and fifty yards from shore. In preference to going out in the lake they would invariably fly farther along the shore.

"I think the birds have probably skirted the shore of the lake completely round, and eventually gone back, down the St. Lawrence River, as I am sure not one-half of the birds observed were shot."

Mr. Chris. Curtis says :

"I have probably had more experience with these birds than any other person about Toronto, and I do think that not one-half of the birds observed were killed.

"I secured fourteen specimens altogether, and the number I took was very small compared with those I saw flying past. I agree with Mr. Montgomery that all the birds were very restless and yet not nervous, as I approached within a few yards of several, and had I worked a little could have shot double the number.

"I have not seen any since Mr. Montgomery found the dead one near his house."

Mr. Hector McDonald notes :

"I was with Mr. Curtis when he took the first bird.

"On December 8 we took ten.

"I am out on the lake three times a week, and all the birds I observed were close to shore.

"Those I secured were taken with comparative ease, as compared to the manœuvering required in duck shooting."

I have since been informed by Mr. Bunbury that a solitary bird remains about the Queen's wharf, and on Sunday, January 14, Messrs. Spanner and F. Dippie saw the bird in the same vicinity. It had probably been wounded, and was thus unable to leave with the others.

G. E. ATKINSON.

Mr. Atkinson's records on the unusual visit of Brunnich's Murres apply to the vicinity of Toronto, and I shall add a few notes on their movements, as far as can be ascertained, in other parts of the province.

Mr. Thos. McIlwraith, has recorded (Birds of Ontario, 1886, p. 33,) a specimen said to have been "found in the [Hamilton] Bay, in a state of extreme exhaustion, about twenty-five years ago," (*i.e.*, about 1861).

Mr. Wm. Couper, of Quebec says,* "This species makes an occasional foolish visit to the fresh waters of the St. Lawrence. In the fall of 1866 hundreds were destroyed by the inhabitants, who sold them to hucksters to exhibit on the market as an article of food."

Mr. Chamberlain says "it occasionally straggles as far west as Lake Ontario." (Cat. Can. Birds, 1887, p. 5.)

The above notes comprise all the records, as far as I know, that are published regarding these birds in Ontario.

In order to ascertain the route taken, and to what extent these birds had travelled inland, members of the Biological Society communicated with a number of observers in various districts, and the thanks of the Society are due to all of whom enquiries were made for their kindness and willingness to help us in every way.

The result of these enquiries has established the fact that the birds followed up the St. Lawrence River and along the north shore of Lake Ontario to its western end.

They also branched up the Ottawa River as far as the city of Ottawa, where they were seen at least a week before they were observed at Montreal.

At Hamilton a specimen was got the day after (November 20, 1893,) they were observed at Ottawa, but the majority were taken about the same time that they were so numerous at Toronto. Probably the first specimen got at Toronto was taken about the time they were first observed at Montreal, but the majority did not arrive at Toronto until eight or ten days later.

Dr. G. A. McCallum, of Dunnville, and Mr. Frank L. Webster,

* In "Our Northern and Eastern Birds," by E. A. Samuels, 1883, p. 573.

of Grimsby, report that none were observed in their respective districts.

Through the kindness of Mr. James Fletcher, I am able to present the following notes by Mr. George R. White on these birds in the district of Ottawa :

"The ones shot here, five in all, were *Uria lomvia*, Brunnich's Murres, and were birds of the year; as far as I can ascertain, the flock consisted of twenty birds upon arrival, and fifteen upon departure, five having decided to remain.

"Four were shot on the Ottawa River, near Templeton, and one, as far as I can ascertain, was shot in the canal at St. Louis Dam. . . . These birds were all shot on the 19th of November."

Mr. Ernest D. Wintle, of Montreal, has given so much interesting and important evidence concerning these birds, that I will insert most of his observations :

"Large numbers visited this district the latter end of November last, and quite a number were shot near Montreal.

"Last April a fresh dead one was picked up on the ice at St. Andrews, P.Q., up the North River, about forty-five miles south-west of Montreal, and it was sent to me by a man who resides there, and who has hunted around that district for years, but had never seen a bird like it before.

"I received another specimen from the same man, which he shot on the Lake of Two Mountains, an expansion of the Ottawa River, a few miles below the mouth of the North River, and he wrote me at the time, the latter end of November last, that there were any 'amount' of them on the lake. . . .

"I saw a mounted specimen here which was shot out of a small flock last December (1892), on the Richelieu River, near St. John's, about twenty-seven miles south-east of Montreal, previous to which I had no record of Brunnich's Murre occurring in this district.

"I have measured the two specimens in my possession, and find them as follows: Length, $15\frac{1}{2}$ and $13\frac{1}{2}$ inches (one skin is stretched more than the other); wing, 8, 7; culmen, $1\frac{1}{8}$, 1; gonys, $\frac{5}{8}$, $\frac{1}{4}$; depth of bill through angle, 7-16, 7-16; tarsus, $1\frac{5}{8}$, $1\frac{5}{8}$; middle toe, $1\frac{3}{4}$, $1\frac{5}{8}$."

Mr. Wintle thinks "the cause of their taking such an extreme inland flight was through failure or scarcity of food in their natural waters and habitat."

Dr. C. K. Clarke, of Kingston, has very kindly given the matter his attention, and gathered together a number of notes which would otherwise probably have been lost.

He sends a clipping from the Kingston *Whig* of December 20, 1893, from which the following are extracts:—"A foolish Guillemot, similar to the one found by Dr. Wood, near Collins' Bay, was picked up dead on the Pittsburgh shore by Arthur Hora."

On December 23, 1893, he writes "the Guillemots have undoubtedly been seen here. I myself saw one. My son and I came across a Guillemot a few days ago. It was in Portsmouth bay, and we were quite close to it.

"Saw Mr. Stratford, the taxidermist, this morning; he says two specimens were sent to him recently.

"Mr. Routley tells me that these birds are quite common on Lake St. Francis, between here and Montreal."

Mr. Thos. McIlwraith, of Hamilton, writes as follows:—"The first of these Murres was brought to me on November 20, and about the 7th or 8th December the last lot that I heard of were secured; they were five in number, and so much reduced that they were taken alive by the hand; about twelve in all were taken here.

"I heard of them between the dates given above at Sherbrooke, Eastern Townships, Ottawa, Toronto and Hamilton.

"To make sure of the identification, I sent one to Mr. Ridgway, who confirmed it a 'Brunnichs Murre.'"

Mr. T. Patterson, mail clerk, G.T.R., Toronto, has furnished the following information:—"Mr. C. Beaty, mail clerk on Central Vermont Railway, residing in Montreal, informs me that Guillemots were numerous on Lake Champlain about the middle of December, 1893, and that many were collected about the same date on the St. Lawrence River, near Montreal, and that he collected several specimens, one of which was mounted and is now in his collection."

I purposed consulting the Observatory records as to wind and weather, to determine, if possible, the cause of the unusual

flight of *Uria lomvia* this season, but found it would require more time than I had at my disposal.

I therefore postponed the search until a more convenient season, when probably the Observatory records will show fuller data, as there are several points in the Gulf of St. Lawrence which are not heard from during the winter months.

HUBERT H. BROWN.

POLYBORUS CHERIWAY ON LAKE SUPERIOR.

ON JULY 17, 1892, a strong south-west gale struck the shore of Lake Superior, and the islands in the vicinity of Thunder Bay, district of Algoma; it blew all day, and on the following morning Mr. George Cosgrove, lighthouse keeper on Victoria Island, about thirty miles south-west of Port Arthur, picked up a bird which had struck the light during the storm.

Knowing the bird to be a stranger, he sent it to Port Arthur to have it mounted.

About three weeks later, being in town, the bird was shown to me; I made measurements and wrote a description of it, which I sent to Dr. Brodie. I was informed by him that it was a Caracara, probably *Polyborus cheriway*, a resident of southern Texas and Mexico, and probably was forced from its habitat by the storm above referred to.

I expected to be able to secure the bird, had not a sudden cold snap frozen over the bay and prevented Mr. Cosgrove from getting to Port Arthur before I had to leave.

It measures as follows:—Length, 22 inches; wing, $14\frac{3}{4}$; tail, $8\frac{1}{4}$; tarsus, $3\frac{1}{4}$; middle toe and claw, 3. It is a slender built bird, but evidently a very strong flyer; the legs are long and slim, much like those of the Marsh Hawk (*Circus hudsonicus*), and about the same size. A large patch extending from the base of the bill, behind the eye and down to the throat, bare and yellow in color, sparsely feathered on the throat; the nostrils turned upward, almost on top of the bill; a black occipital crest about four inches in length; neck and lower part of throat white, with a black spotted line around the lower part of neck; back and upper parts of wings dark brown, turning

black toward the edge of the wing, with a white bar across the first five primaries; the tail is white, barred transversely with light brown lines, and a broad, dark brown bar across the end and up the outer feathers; belly, dull black; iris, brown; feet, yellow.

This is undoubtedly the first record of this species in Canada.

On examining the drawings of Caracaras in "Swainson's Zoology" and other works, I can undoubtedly identify it as *Polyborus cheriway*.

G. E. ATKINSON.

CAPTURE OF PURPLE GALLINULE (*IONORNIS MARTINICA*) NEAR TORONTO.

DURING the past few years there have been a number of avian rareties recorded for Ontario, and to these may be added the capture of a Purple Gallinule, the report of which was presented by Dr. Brodie at a meeting of the Natural History Society of Ontario, held on April 26, 1892.

The bird was shot at the mouth of the Rouge River (sixteen miles east of Toronto) on April 8, 1892, by Thomas Chester, of Port Union.

Mr. Chester was pike-shooting when he saw the bird sitting on a log, and believing it to be a mud hen, he shot it.

It was exhibited at a subsequent meeting of the Society, and is at present the property of Dr. R. M. Bateman, of Pickering, Ontario.

"*Hab.*—The whole of tropical and warm-temperate America, south to Brazil; north, casually to Massachusetts, Maine, New York, Ohio, Wisconsin, Illinois and Missouri; Bermudas, and throughout West Indies. Not recorded from any part of the western States." Baird, Brewer and Ridgway.

There is, however, a record for San Antonio, Texas (*Auk*, vol. IX., 1892, p. 232.), and D. E. Lantz records the capture of a specimen in Kansas, on April 14, 1893. (*Auk*, vol. X., 1893, p. 300.)

Dr. Brewer says that "stragglers have been found along the entire Atlantic coast as far eastward as the Bay of Fundy," and

says that "about the time of the severe revolving southerly gale of the 30th of January, 1870, an individual of this species was driven into the harbor of Halifax, and was secured."

Mr. Montague Chamberlain, in his "Catalogue of Canadian Birds," mentions the above record (Halifax), and another taken near St. John, N.B.

Dr. J. H. Garnier, of Lucknow, in answer to an enquiry, writes, "Regarding the *Porphyris Martinica* (Linn), I saw only one, some ten years ago. It was on the St. Clair Flats, and was killed by some boys, who destroyed it by pulling its head from the body, and otherwise mutilating it. However, there was no doubt as to the identity of the bird, and I greatly regretted its loss."

HUBERT H. BROWN.

ÆSTRELATA HASITATA TAKEN AT TORONTO.

On October 30, 1893, a male specimen of the Black-capped Petrel was picked up at the water's edge on Toronto Island, by Mr. George Pierce, who gave the bird to Mr. Oliver Spanner.

It measured as follows:—Length, 15 inches; wing, 11 $\frac{1}{8}$.

The bird had evidently been in the water for a considerable time.

To show to what extent this species wanders sometimes, I will give Baird, Brewer and Ridway's account of their habitat.

"Warmer parts of the Atlantic Ocean, straying to Florida, England and France."*

Dr. Coues speaks of them as "of casual occurrence on the Atlantic coast, U.S."

In the winter of 1846, one specimen was taken off the coast of Florida, and another was shot on Long Island in July, 1850.

Mr. Ellison A. Smyth, Jr., records in *The Auk* (Vol. X., 1893, p. 361) the capture of another specimen in Virginia, about 200 miles inland, on August 30, 1893, "two days after the great cyclone."

The visits recorded are undoubtedly accidental, and show

*Baird, Brewer & Ridway: *Water Birds*, Vol. II., p. 395.

that their appearance is of rather rare occurrence in North America ; the bird got at Toronto is probably the first recorded for Canada.

It is now in the collection of Mr. J. H. Fleming.

HUBERT H. BROWN.

MOURNING WARBLER BREEDING AT TORONTO.

JULY 1, 1893.—In a very thick swampy spot up the Don River I saw a pair of Mourning Warblers (*Geothlypis philadelphia*) that appeared to be very much excited and annoyed at the presence of my dog. On my going to the spot, the male warbler dropped to the ground and ran ahead of us with its wings half raised. I caught the dog and searched carefully, and found a young bird still in the downy plumage. It ran well and hid cleverly, but at last I caught it. The female did not come very close to me until I actually had the young one in my hand, and then only for a moment ; she seemed to be attending on other young in the bushes a short distance away.

JULY 2.—Caught the male parent of my young Mourning Warbler in a trap cage by using the young one as a decoy. Whilst he was about the trap a Hawk (Broad-winged) dashed at him, and alighted on the spot the Warbler seemed to occupy, but the Warbler in some way slid from under the Hawk's claws, and ran into the thick bushes and escaped that danger.

JULY 26.—The young Mourning Warbler which I am raising is now showing some clear yellow along the sides of the breast and under the tail ; hitherto the head, neck and back have been brown ; the tail, primaries and secondaries olive green ; chin and throat brown, and breast and belly pale yellowish brown ; feet and tarsi flesh color ; the bird is very active and tame, and bathes every day.

AUGUST 11.—The young Mourning Warbler is now fully fledged and very active, but shows no sign of black on the throat or ashy blue on the head ; it catches flies on the wing with the greatest ease and certainty, and is very fond of all kinds of succulent green leaves.

BLACK RAIL (*PORZANA JAMAICENSIS*)
IN ONTARIO.

AUGUST 18, 1874.—Shot four of these birds this evening in the Dundas Marsh; my dogs put them up where the rushes had been mowed. This is the first time I have ever noticed them here, but afterwards during this season I saw several others.

C. W. NASH.

YELLOW RAIL (*PORZANA NOVEBORACENSIS*)
IN ONTARIO.

1874.—During the early autumn of this year I shot several of these birds in the Dundas Marsh, and saw many of them.

C. W. NASH.

CISTOTHORUS STELLARIS TAKEN AT TORONTO.

ON THE 29th August, 1891, I had the good fortune to capture a specimen of this bird at Toronto; this is the first, I believe, ever taken in Ontario.

I found the bird in a field of long, rank grass, a long distance from water or swamp, just east of Toronto.

C. W. NASH.

CANADIAN GALLS AND THEIR OCCUPANTS.

DIPLOSIS EREGERONI, N. S.

GALLS FOUND ON *Erigeron canadense*, variously situated from base of stem to tips of branches of flowering panicle; galls irregularly cylindrical, tapering at both ends, spindle-form, those on the branches more or less spherical; from 1 to 15 galls on a plant, seldom more than 10; found usually on diminutive plants, such as grow on wet, sandy places or on high, dry banks.

As yet I have not found any of these galls on robust plants.

The galls appear like swellings of the stem or branches, uniform in color with the plant, the surface with feint longitu-

dinal lines, slightly elevated ridges and ragged transverse elevations, resembling leaf scaurs.

The interior consists of uniform, soft, white pith, through which the larvæ tunnel.

On April 20, 1892, I made a collection of forty-seven galls and placed them in a glass jar; they were pitted with numerous small holes, and many of the occupants had evidently emerged.

On April 24, 1892, several cecidomyid larvæ had emerged, and were resting on the bottom of the jar; they were of a pale orange color, 3 mm. long, 0.4 mm. diameter.

The average size of ten of the largest and most cylindrical of the galls was 35 mm. by 12 mm.; diameter of stems under galls, 4 mm.; of ten of the upper and more spherical, 5 mm. by 4 mm.; diameter of branchlets under galls, 2 mm.

From May 30, 1892, to June 8, 1892, twenty-seven specimens of *diplosis* emerged.

From May 30, 1892, to June 23, 1892, numerous parasites of two species emerged.

On July 26, 1892, full-grown galls were found in growing plants, uniform in color with the stems of the plants; a few plants with galls were transplanted to the garden and carefully watched. *Diplosis* larvæ began to emerge October 15, 1892.

On November 13, 1892, a lot of seventy-three galls was collected from several localities, and all from diminutive plants.

The average size of ten of the largest, from the stems, was 35 mm. by 8 mm.; diameter of stems under galls, 4 mm. Average size of ten of the more spherical, from the branches, 3 mm. by 2 mm.; diameter of twigs under galls, 1 mm. These galls were pitted with minute holes.

From May 11, 1893, to June 19, 1893, numerous parasites of two species emerged—an *Ormyrus* and a *Pteromalus*.

From June 7, 1893, to June 15, 1893, several pairs of producers emerged.

The producer of this gall, for which I propose the name *Diplosis eregeroni*, bears a close resemblance to several of the cecidomyid gall-producers on herbaceous plants, and a recognizable description must be based on a full and careful comparison with these, many of which are undescribed.

This species differs from several of its congeners in having four conspicuous transverse white bands on dorsum of abdomen, and in having wide white annulations on the legs.

So far as yet determined the two parasites are restricted to this gall, and I propose *eregeroni* as the specific name. *Ormyrus eregeroni* and *Pteromalus eregeroni*.

It would appear to be the normal habit of the *Diplosis* larvæ to emerge from the galls in the fall season, and winter a short distance under the soil, but the parasite larvæ to winter in the gall.

W. BRODIE.

CALOPTENUS FEMUR-RUBRUM.

DURING THE SUMMER of 1893 this grasshopper appeared in large numbers in several of the middle and eastern counties of Ontario, and did much injury to farm crops.

The northern parts of the Counties of York and Ontario suffered very severely.

They were especially numerous in the Township of East Gwillimbury, taking the village of Mount Albert as a centre, with a radius of about four miles, extending into the Townships of Uxbridge and Scott, and many thousand dollars worth of farm products was destroyed over this area.

It was observed they were especially numerous on light, sandy soils, where a considerable acreage lay uncultivated.

They appeared first about the middle of June and rapidly increased, so that the injury done to the hay crop was very considerable. They next attacked the grain crops, and although oats were their favorite diet, they attacked, and in many localities completely destroyed the other cereals.

Later in the season they attacked all root and garden crops, except parsnips, stripping the leaves, and in many cases eating down into the roots.

In passing over fields or along roadways they would rise in immense, blinding swarms, numerous enough to devour every green thing.

It is to be hoped that next summer something unfavorable to their increase may occur, or many farmers will be eaten out of house and home.

GEO. BRODIE.

Craigieburn, Whitchurch.

THE COUNTY OF MIDDLESEX was scourged last summer by immense swarms of grasshoppers. The common red-legged species (*C. femur-rubrum*) was the most numerous, but the larger greenish-yellow species (*C. bivittatus*) was also numerous.

The hay and pasture were injured to some extent, but the oats suffered more than any of the other crops. The turnips, also cabbage, were injured to a great extent, not only along the margins of the fields, but over the whole area. Over entire fields the leaves were skeletonized, nothing but the mid and side ribs standing up.

The corn crop, nearly all farm crops, even onions, were considerably injured. Mangolds was the only crop which escaped.

They were especially numerous towards the latter part of the season, and the aftergrowth of hay fields and pastures generally was very much kept down by them, thus lessening dairy products to a considerable extent.

Prince Edward County, which I recently visited, seems to have suffered about as much as Middlesex, and it is now pretty certain that the plague was general over the Province.

It is much to be desired that full statistics, as to the amount of injury done to farm interests last season by grasshoppers, be compiled and published. It would be a very surprising record to many farmers, who are very apt to underestimate the injurious effect of insects.

In the absence of such statistics any estimate must be more or less inaccurate, but, taking as a basis of calculation the estimate that the injury on every farm amounted to one hundred dollars, a very moderate one, the aggregate is away up in the tens of millions of dollars.

W. A. BRODIE.

Belmont.

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LIPARIS LŒSELII RICHARD.

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MAMMALOLOGY.

THE AMERICAN PANTHER IN CANADA.

Felis concolor, LINN.

THE Panther is still found in the mountains of British Columbia, on Vancouver and probably on other Pacific islands, near the coast.

The specimens, of which we have certain evidence as occurring in Ontario in the early part of this century, may have been remnants of the race, or they may have been adventurers from the south.

But there can be little doubt that up to about the close of the last century the Panther was a native resident species in this Province, as also in the Province of Quebec.

The climate of southern Ontario is as mild as that of New York State. There were rocky escarpments and ravines, magnificent forests, open glades, marshes and cedar swamps, abounding with deer, beaver, racoon, wild turkeys and other game, their usual prey, forming altogether a habitat suitable for the development of the species.

The Panther literature of the United States is very copious and complete; in periodicals, in Washington and in State reports, in monographs, and in many other excellent general works, treating more or less of natural history. But in Canada

there is a remarkable scarcity of published matter, and the tales of hunters and early settlers, current everywhere half a century ago, were, unfortunately, indefinite as to locality and date, and generally unreliable.

The advent or extinction of a species in any habitat is always of scientific value, more especially such a large and formidable animal as the Panther. Of course it is evident such an animal must disappear with the clearing away of forests and the settlement of the country. It is believed to be now extinct in the States of Pennsylvania and New York, where formerly it was a well-known resident species. It became extinct in the State of Ohio about the beginning of this century; it would appear the last authentic record is 1805.

It will be our endeavour to collect what we can of the meagre and scattered information, documentary and oral, bearing on the occurrence of the Panther in Ontario, and to edit and publish what may be deemed worthy of record.

So far we have been fortunate in securing valuable papers, given in this number, from Messrs. Doel and Calcutt, and we would again earnestly appeal to all who have any information on this subject to communicate the same to us, so that it may not be lost forever to the Natural History of our Province.

THE PANTHER IN CANADA.

BY THE REV. JOHN DOEL.

SOME time ago you requested me to write an account of the mounted specimen of the American Panther (*Felis concolor*), which I had at one time in my possession.

When I was a boy going to school, about 1830, there was a taxidermist in York (Toronto) by the name of Wood, who had a very respectable collection of stuffed birds and animals. We boys, whenever we got a dead bird or a squirrel, would take it to him, and he rewarded us by showing us his museum. This collection was afterwards purchased by Chas. Fothergill, at this time Queen's Printer, residing in the town of York (Toronto); after his death all of his collection was deposited, for safe

keeping, in a house on York street, near King street. Shortly after, this house and its contents were destroyed by fire; the stuffed panther and a few other things, which were rescued, were left in my charge, and which I kept in my father's brewery, on Bay street, until it was destroyed by fire in 1843 (?). The panther was a fine large one, and was shot in the Township of Scarboro.

From 1822 to 1827 my father kept a house of entertainment for farmers—but kept no liquor. The Doans and Wilsons, of Whitchurch, the Reesors and others, of Markham and Scarboro, would meet there in the evenings, and they often talked of their adventures with wolves, with bears and with other animals. They frequently referred to the depredations of a catamount or panther which had been prowling through these townships, but more especially the Township of Uxbridge, which at that time, about sixty-five years ago, was almost an entire wilderness. If I remember aright, one of these men had an encounter with the catamount, and had killed him. I do not now remember which of the men it was. I was about ten or twelve years of age at this time, full of boyish curiosity, and would sit up until midnight, when permitted, listening to these tales of backwoods adventures. These farmers would naturally call the Panther Catamount, as some of them and their fathers came from Pennsylvania, where the popular name of the beast is "Catamount," as it is also in the Catskill and Alleghany Mountain region.

I remember reading, some years since, an account of one killed on the Alleghany Mountains which weighed 240 lbs.—half the weight of an African lion; this must have been a large and powerful animal.

I have always been of the opinion that the Catamount, spoken of by these farmers as having been killed by one of them, was the specimen which for some time was in my keeping; probably killed some time before 1820, sold to Mr. Wood and mounted by him.

While writing about the Panther I will give some further information, from personal recollections, and from what I have gathered from several sources.

I remember of hearing about this time (1826) of a man of the name of Burkholder—I am not sure of the name, but the circumstance I remember perfectly—who, on going home one night from York, was attacked by a Panther on Baldwin's Hill, near Yonge street. He had a desperate fight with the beast, but he was a courageous and powerful man, and by using a heavy stick he succeeded in beating it off, but his clothes were torn to pieces, and he was so badly hurt that he had to come back and stay for some time in York before he was able to go home. This man, Burkholder, was most likely one of the early settlers of York Township, and the incident may have occurred some time after 1812.

I think it is somewhere about forty years ago that a woman residing in Thornhill (about twelve miles north of Toronto) was working in her garden very early one morning, and was terribly frightened at seeing a very large, fierce-looking yellow animal jump over the fence, run across the garden, jump the other fence and disappear in the woods. She gave the alarm, and a hunt was immediately organized. They followed him all day and saw him several times, but could not overtake him; he was making his way to the big swamp.

In the year 1853 I was preaching on the Crosby circuit, and Mr. Thomas Leggatt, a farmer of Crosby Township (County of Leeds and Grenville), with whom I was boarding, gave me the following information: "Several years ago (1847?) I was going to visit my brother John one morning in the fall of the year, and just as I was about to cross the bridge, I heard a strange noise behind me. I turned sharp around, and saw a large yellow animal coming towards me. As soon as I turned to face it, it stopped and crouched down, ready for a spring, but I stood still and faced it, when slowly it rose up and walked around, trying to get behind me, which it could not do owing to the creek. It walked backwards and forwards several times, then turned around, threw up its long tail and disappeared in the woods. I was very much frightened, for I knew that I had the terrible Panther before me. I knew that if I ran away he would be upon me in a moment."

Mr. John Singleton, also a farmer in Crosby, living near Mr.

Leggatt's, told me that in the next fall to the one referred to by Mr. Leggatt (1848?) he and his brother went into the woods one evening in search of the oxen, which had strayed away. Each took a different direction, and it was getting quite dark when he heard a loud cry, and, thinking it was his brother calling to him, he answered the call. In a few moments the cry was repeated much nearer to him; he then knew it was the Panther, and he took to his heels as fast as he could towards the clearings, the animal following him closely until he came to the public road, when he heard no more of it. His brother had got home some time before, having found the oxen. Later in the fall, one beautiful moonlight night, he was awakened from his sleep by hearing his dogs barking savagely while running up the lane towards the house, evidently chased by some animal, and, knowing the dogs were not cowardly, he concluded something serious was wrong, and arose out of bed, and on opening the door he saw the dogs run into their kennel under the house, closely pursued by a large yellow animal with a long tail. The opening of the door attracted the beast's attention, and prevented him from following the dogs under the house. It was but the act of a moment to seize his always loaded rifle and fire at the animal, which then gave a frightful scream and ran around the end of the house and jumped into the woods, but he could not say whether it was wounded or not. The scream was the same as he had heard in the woods when searching for the oxen, only louder and wilder.

He also stated that the beast was very troublesome to settlers in the Township, running cattle and sometimes killing pigs, sheep and young cattle. One evening his cattle came galloping home looking terribly frightened, and blowing as if from a long chase, and it was seen that a yearling heifer was terribly torn on the flanks and rump by the claws of some large animal.

The statements of these men were perfectly reliable; they were industrious, substantial farmers, and good, truthful Christian men.

In the same year (1853), while on the rounds of my circuit, I went to the house of a good Christian family to stay for the night. They told me that a farmer, whose name I have for-

gotten, living about four miles from them, was terribly frightened a few days before, by a large wild animal. He had been to Brockville on some business, and on his return journey he stopped at this house, rested, had supper and also hay and oats for his horse. He started for home about ten o'clock in the evening; it was a beautiful, bright moonlight night; he was perfectly sober, as he did not take any intoxicating drink. He was riding along at a gentle trot when, nearing a bridge across a stream, in a deep hollow, his horse gave a loud snort, suddenly stopped, reared up, swerved around, almost throwing him off. On looking in the direction indicated by the actions of his horse, he saw a large yellow animal, with a long tail, crouching by the side of the road, not many yards away. On his making a threatening gesture towards it, and giving a loud yell, the animal got up, looked at him for a moment, and then bounded into the woods. The horse was so frightened that he became unmanageable, and galloped back to the house from which they had started, when it was plain both man and horse were both very much frightened. This occurred in the Township of Ops.

I called to see this farmer soon after he had this adventure, and he gave me a very full account of it, many particulars of which I have omitted.

I offered an old hunter ten dollars if he could get the animal for me. He found the track several times, but it was always lost in the big swamp, known as Pigeon Creek Swamp, a broad and dismal swamp running through several townships.

I called at a farm house on the Ops side of the swamp, and the farmer asked me if I had heard anything while coming through it, which I had not. He said, "Last night something took a hog from my very door. Yon swamp is a terrible place; what terrible screams I hear down there almost every night!" (1853).

I remember reading in the *Toronto Globe*, about four years ago, an account of the killing of a large animal of the cat kind—I think in the Township of Malahide—which measured over six feet in length. It was an animal of a kind never before seen up there. It could not have been a lynx, for they were common there, and besides I never knew of one over four feet in length.

Just before the Rev. Mr. McDougall, Methodist missionary in the far west, came to his tragic death, he wrote a letter for the *Christian Guardian*, giving an account of the work on Morley Mission, and in which he stated that his son had shot a very large Panther, measuring above eight feet in length.

You will see by the accompanying slip, which I cut from the *Toronto Evening Telegram* of January 4th, 1884, that a very large one has been killed lately in Ontario.

"On Tuesday morning last week Mr. T. W. White, of Creemore, captured a large wild cat measuring nine feet from tip to tip. He learned that one had a nest in a hay stack a short distance from there, and set a gun in the entrance with a piece of meat attached in such a way that as soon as it was pulled, the gun would discharge its contents in that direction. The plan worked beautifully, and Mr. White secured his game."

It would then appear that the Panther has been known by the early settlers as a pretty well known resident over a large portion of the Province.

"THE COUGUAR."*

"Cougar—My specimen measured in its total length 6 feet 10 inches, of which the tail alone was 2 feet 3 inches."

"There appears to be two kinds by those exhibited in the show in Whitby, 1835, which had small heads and a black patch on each cheek."

AMERICAN PANTHER.

BY JOHN CALCUTT, 1885.

About forty-eight years ago—I cannot fix the date more accurately, but I remember it was not long after the rebellion of '37—a gentleman farmer (Dr. Jas. Pringle, formerly in the East India Company's service in India) came into the town (Cobourg)

*Extract from MSS. Diary of Chas. Fothergill. Page 56. Now in Toronto Public Library.

with the alarming intelligence that one of his cows had been killed and partly eaten by some wild animal, which he had reasons for believing was a panther. As he had been accustomed to hunting tigers, wild boars and other beasts in India, his opinion and judgment was treated with respect, yet we could not account for the appearance in the neighbourhood, only a few miles north of the town, of animals powerful enough to kill and drag a cow nearly half a mile, and half way up a very steep hill on the farm where it was afterwards found.

He told us that when he saw the cow dead and torn he came to the conclusion, from various observations, that it was killed by neither a bear, lynx or wolf, but he believed it to be by a panther or catamount. He said he spent a large portion of the night in a tree not far off, with his rifle, watching in the hope of getting a shot, but the animal, or whatever it was, did not reappear while he was there; but the next morning the cow had disappeared, and he traced it to where it had been dragged.

His chief object in coming to the town was to beat up recruits amongst his friends for a general hunt, in the hope of finding and killing his dangerous neighbour before any further harm could be done.

We eagerly acceded to his request. There was a spice of danger in the enterprise, and he soon obtained a dozen resolute fellows, ready and willing to risk their lives in search of adventure.

The next day we started bright and early for the general rendezvous at his farm house, and soon afterwards commenced our tedious tramp.

We searched the dense woods, deep, dark swamps, and every place of concealment in a circuit of many miles, but without effect. We came upon one place where it was plain to be seen some animal of the cat species had been sharpening its claws, for a tree had been torn and the bark scratched in many places. We walked all day, and examined as well as the nature of the dark forest and thick foliage would permit, and returned at sundown, tired, weary and disappointed, to partake of a splendid dinner provided for us by our hospitable host.

I cannot remember the names, at this distance of time, of

those present at the hunt except Dr. Pringle himself, Henry Hayter, son of Lieut. Hayter, R.N., and Mr. Rowe Buck; Henry Hayter, because he brought a yelping mongrel that many a time we thought was a means of alarming and driving away the animal we were seeking; and I recollect Rowe Buck because, while waiting for dinner to be served, he proposed we should all discharge our guns before going into the house, and he stuck up a silver half-dollar, and offered to give it as a prize to whoever could knock it down at the distance marked out. Many of the party had rifles, one or two shot guns loaded with ball, and each fired in turn without hitting so small an object. I came last. I had a capital English made double-barrel, that had often served me well in similar trials of skill, and I succeeded in hitting and knocking down the piece of money without difficulty, but Rowe Buck objected to giving it on the flimsy excuse that my gun must have been loaded with shot, and because, forsooth, all the others had failed. To convince him, I dared him to put it up again, and, on his declining to do so, I set up in the same place a piece of white china of the same size, which I smashed to pieces with the bullet of the other barrel.

This circumstance and Henry Hayter's little dog, perhaps, is what has fastened these two names upon my memory.

Every one of that jolly party, I believe, are dead, except Rowe Buck and myself, and he is well advanced in years, but he may possibly remember the occasion of the hunt, if any corroboration of this story is required. Mrs. Pringle, too, wife of Dr. Pringle, and sister of Rowe Buck, is also still alive.

Soon after the murder of Captain Ussher at Queenston, and the blowing up of Brock's Monument by the notorious Benjamin Lett, a descent was made in the neighborhood of Cobourg by a large party of marauders for the purpose of murder and plunder, led by this celebrated outlaw. I was invited to join an expedition sent to arrest them, and we succeeded in capturing the whole lot except Lett, who escaped.

It was in one of the night excursions, despatched every evening for a long time afterwards, in the endeavour to take this dreaded maurauder, that returning one morning, as we

passed near the farm where the hunt took place, about the dawn of day, we were suddenly startled by hearing the most frightful screams in a thick, dark, swampy forest we were passing. I knew in a moment that they proceeded from a Panther, or a beast of the same kind, and we at once came to the conclusion it was the animal that had killed the cow. The cries of the brute were appalling; anyone that had ever heard the screams of a Panther could not be mistaken when listening to these frightful yells.

Time passed. Farmers that lived in fear and trembling of a visit from this dangerous fellow began to be less alarmed, when one day a gentleman who lived some five miles east of Cobourg, on the shores of Lake Ontario, came into town and said that he had seen traces of the Panthers again. He said he came upon a ravine on his farm where he particularly noticed their tracks, and at one place where a leap had been made across a distance, by actual measurement, of twenty-three feet. He said his hounds appeared to be frightened, to go about trembling, and cowering at every noise. From these circumstances he was satisfied they were not far off, and he proposed another hunt. While waiting to fix upon a convenient day and collect a party, news arrived that a couple of Panthers had been shot near Grafton, a few miles further on. This settled the question; there were no more doubts as to the species of animals the marauders belonged to, for there they were, veritable American Panthers.

I have heard since then many disputes as to the existence of Panthers or catamounts in Canada, but the foregoing is not the only instance of their presence in this country that has come under my notice and observation. It must be remembered that in those days there were dense forests, dismal swamps, and it was not unusual to hear of the visitations of bears, wolves and lynx.

I give this story for what it is worth; I merely relate my own experience; but no one could persuade me that a lynx was powerful enough to drag a large, heavy cow, the long distance from where she was killed, to where we found her afterwards. From what I heard, saw and know, I believe I am correct in every particular.

THE PANTHER IN ONTARIO.

BY WM. BRODIE.

FROM about 1840 to 1843 tales of the appearance and depredations of a Catamount were current in the northern part of the County of York.

The animal,—for it was not said there was more than one—it seemed, ranged over a wide area, from the central part of the pine ridges of Whitchurch, then an unbroken forest, down to certain cedar swamps in the Township of Markham, and through the Townships of Uxbridge and Pickering to Frenchman's Bay and the banks of the Rouge.

It would seem that the animal did not remain very long in any locality, for every month or so, stories of its screams being heard, of its being seen running cattle at night, of its killing and eating sheep, pigs and calves, were current at quite distant parts.

The settlers at this time were quite familiar with bears, wolves and lynx. These animals were frequently seen, shot and trapped. I remember standing at the door of the old homestead in Whitchurch, listening to the howling of a pack of wolves. He was not much of a backwoods man who could not diagnose the "signs" of these animals, but there was a unanimous agreement among settlers and hunters that the animal which uttered these "blood curdling" screams, which killed and eat sheep, pigs and young cattle, often dragging the carcasses long distances, was neither bear, nor wolf, nor lynx.

At this time there resided on Lot 3, 4th Con. Whitchurch, a farmer and tanner named Andrew Brillinger. Andrew, as well as being a farmer and a tanner, was a hunter and trapper from boyhood, an unerring rifle shot, quite familiar with the woods and the habits of all our native wild animals, having frequently shot and trapped lynx. About midsummer, 1839 (?), Andrew was hunting for a buck in a very dense cedar swamp, on the rear of Lot 6, 3rd Con. Whitchurch, by the margin of old Simon Teel's Lake, when he came suddenly face to face, at a very short distance, with a beast which, to his dying day, he asserted was a lion. He was so very much frightened that he dared not fire, believing the lion would attack him in case it was only

wounded, so he backed away, the lion still sitting on his haunches looking on, and made his exit from the swamp as quickly and quietly as he could. Andrew ran to the nearest farm houses, gave the alarm, and a hunting party was speedily organized, but, as it was getting towards nightfall, they thought it wise not to enter the swamp that day, but to meet in the morning with an increased number of men and dogs. This was done, and the neighbouring swamps and woods hunted through, but the lion was neither heard nor seen.

No one ever doubted Andrew's story, for he was well known as a truthful and upright man, but as he positively asserted it was a lion which he saw, it was thought he was mistaken in his identification. He had seen lions in a menagerie, and might readily mistake the Panther for a lioness.

About the same date, 1839, as near as it is possible to fix it, David Baker had commenced a clearing on Lot 12, 8th Con. Whitchurch. There was not a dwelling house on the lot, and he made his home at his father's, about a couple of miles distant. On returning from his work one evening, he saw what he said he knew to be a "painter." The animal was lying on a fallen pine tree, close by the footpath; the head was erect, and Baker saw it was looking intently at him. He saw a movement of the tail, which was hanging over the side of the log towards him; it did not shew the slightest sign of fear, and he was within thirty yards of it. At the first glance he thought, from the colour of the beast, it was a deer. He was carrying his trusty rifle in his hand, but "in a moment of weakness" he decided not to fire, for fear the animal would attack him in case he failed to kill it at the first shot, and so he turned and made a near cut to the nearest clearing, and he did not think it followed him.

David Baker became a well-known, worthy Whitchurch farmer, a truthful and reliable man. I knew him intimately, and was often out hunting in his company. He was well acquainted with the habits of bears, wolves and lynx, being an adept at shooting and trapping them, and could not be mistaken in his identification of the animal. I last saw him in the autumn of 1891, when he was on his way to Michigan, where I believe he is now residing.

ORNITHOLOGY.

GENERAL NOTES FOR 1891.

BY C. W. NASH.

Turdus mustelinus.—On the 7th September I took a female of this species in North Toronto, and during the summer saw five or six others.

Cistothorus palustris.—This species is exceedingly abundant in all the marshy inlets of Lake Ontario. I saw and heard the first on April 28th; it was singing vigourously. The bulk did not arrive until May 14th, when they swarmed in their usual haunts.

On May 27th, I found the first nest; this was not quite complete, but nearly so. On June 5th I found another nest containing four eggs, which is about the average number they lay in this locality.

During the season I examined the stomachs of a good many, and found them always filled with the remains of small beetles.

Towards sunset these birds have a curious habit of shooting straight up in the air, and then gently descending, at the same time uttering a very pretty warbling song.

Troglodytes hiemalis.—These birds are generally said to spend the summer to the north of us, but this season I found two pairs nesting within a few miles of the city; in both instances they selected a dark, cool and damp ravine for their home, and in each case successfully brought out their young.

Anthus pensilvanicus.—As usual these birds appeared in large numbers this fall; the first arrived October 9th, when I saw one flock flying over. From that date I saw them daily until October 30th, when the flight ceased.

Helminthophila ruficapilla.—This species was very abundant in the neighborhood of the city, in the spring migration; the

first appeared May 18th, on which day they were common. I think a few remained here to breed, for though I found no nests, yet I saw specimens occasionally all through the summer.

Helminthophila celata.—I took a male of this species May 15th, the only one I saw ; it is very rare in Ontario.

Helminthophila peregrina.—A female taken May 18th the only one seen ; this species occurs even less frequently than the last.

Dendroica maculosa.—This species occurs regularly, and is rather abundant here in the spring, but their stay is of short duration. May 14th I saw the first, a few males, on the 18th they were abundant, both sexes together, and on the 23rd all had left, but a few scattered females.

Dendroica palmarum.—I have usually found this warbler fairly well represented throughout the Province, but this season I saw only one, which I took near Toronto, May 15th.

Seiurus noveboracensis.—On May 8th I took one, and on August 8th I took another ; besides these I saw at least five or six others in the spring. In the autumn I saw only the one taken August 8th.

Lanius ludovicianus.—Twenty years ago this bird was common throughout western Ontario and the Niagara Peninsula, but of late years they have apparently almost abandoned the Province. This season, however, I found three pairs nesting near the City, all of which took off their broods safely. The first appeared May 7th, and they left almost as soon as the young could fly well ; the last I observed July 10th, an immature bird.

Calcarius lapponicus.—Rather an unusual number of these birds visited this neighborhood this autumn ; on the 10th of October I saw a few small parties of them ; from that day until the 26th, I saw several large flocks daily ; these flocks were composed of Longspurs only. On the 29th of October I saw the last of them ; this was a single bird, with a flock of Snow Buntings.

Passerella iliaca.—In the spring migration I saw several of these somewhat uncommon birds, the first April 12th. In the autumn only one was seen, this I took October 23rd.

Scolecophagus carolinus.—I found these birds abundant, both in the spring and fall migrations, this season. In spring, the first appeared April 6th, and the last was observed May 8th, a rather late occurrence. In the autumn the first were seen October 6th, and the last October 27th.

Quiscalus quiscula æneus.—These birds have greatly decreased in number during the last twenty years; now I know of only three colonies breeding within the city limits, and they are very small. This season the first appeared April 14th, a transient flock of about fifty. On the 16th, I found them occupying one of their old breeding places in full force; here they remained until June 13th, when they took off their young and entirely disappeared for the season. I did not see a single one after that anywhere near Toronto; possibly they have learned, from bitter experience, that it is not a healthy place for their children to grow up in, for they certainly remain in other parts of the Province until the end of October.

Trochilus colubris.—This species was very abundant here this season, particularly during the time of the blossoming of the Water Balsam, *Impatiens fulva*, which they much frequent. The first appeared May 8th, and a few remained here and bred, the great increase in their number occurring about August 15th. I examined the stomach contents of a large number during the season, and found them invariably filled with insects. The Entomological authorities at Washington identified some of these for me, and amongst others found they consisted of *Bythoscopus* (order *Hemiptera*), a species of *Entedon* (family *Chalcididæ*), small gnats and spiders; and in one a small quantity of sharp sand. I also noticed, that if pressure is exerted upon the breast when a bird is killed, that a drop of clear and sticky fluid is exuded from the beak; this is no doubt honey; but the essential food of these birds is undoubtedly insects, and I think that the greater part of these insects are taken by the birds from the trunks of pine trees, around which I have frequently observed them hovering, particularly early in the morning and towards evening, and usually at some height up the tree.

Coccyzus americanus.—Nearly every season is marked by the

unusual scarcity or abundance of certain species of birds ; thus, the summer of 1889 produced a comparative abundance of this usually rather rare bird, but this season (1891) I was only able to positively identify it once, when on June 24th I took a female.

Phalaropus tricolor.—On July 21st, I took a female of this species, which is somewhat rare in this Province ; its occurrence at this date, too, is peculiar.

Micropalama himantopus.—July 18th, I took an adult female, and on the 28th, an adult male. This is one of the few birds that is not known to be common anywhere in America.

Rallus virginianus.—On the 6th of July, I found a nest of this bird's, containing thirteen eggs ; these had no doubt been deposited by two females, as eight of them were far advanced in incubation, the other five being almost fresh, only very slight blood marks showing ; they were arranged in two layers in the nest.

Phalacrocorax dilophus.—April 24th one of these birds flew close past me on Ashbridge's Bay ; its occurrence so near Toronto is unusual.

Sphyrapicus varius.—I notice in the last publication issued by the Ornithological sub-section that Mr. J. B. Williams, referring to this species, says : " I find from records that these birds arrive here about the 14th of April, and almost disappear about the 18th." This differs from my experience in the vicinity of Toronto most materially. The date given for the arrival accords with my notes exactly ; but I have always found them quite common up to about the 24th of May, and this season I found at least six pairs breeding here, and saw them with their young after they were brought out.

I have examined the stomachs of a good many of these birds, but have never in that way been able to discover any evidence of their alleged sap sucking propensities, nor have I ever found any trace of fruit in any of them ; their favorite food seems to be ants and beetles, with the former of which they are generally well filled.

BIRDS OBSERVED BREEDING IN THE VICINITY
OF TORONTO DURING THE SEASON OF 1892.

BY JOHN JACKSON.

Corvus americanus.—(April 24.) Nest placed in an oak tree, about forty feet from the ground; composed of sticks and twigs, lined with hair, vinebark and dead leaves. It contained five fresh eggs. Average size, 1.70 x 1.17.

(May 24.) Nest almost identical in construction with the preceding, placed in a pine tree about thirty feet from the ground, containing five eggs, slightly incubated. Average, 1.62 x 1.18.

Porzana carolina.—(May 11.) A nest of this species was found in Ashbridge's Bay containing three eggs, but on visiting it about a week later the nest and eggs were found destroyed, owing to a sudden rise in the water of the locality.

Cyanocitta cristata.—(May 15.) Nest placed in a red pine tree, about twelve feet from the ground, composed of sticks, twigs and scraps of paper; lined with finer twigs and plant stems. It contained four fresh eggs. Average, 1.10 x .82.

(May 22.) Another nest of this species was found in a pine tree, about eight feet from the ground, containing four eggs far advanced in incubation.

Falco sparverius.—(May 18.) A nest of this species was located in a hollow birch tree, about twenty feet from the ground. The cavity was about eighteen inches in depth, and contained three fresh eggs, which were laid on the bare wood. Average, 1.37 x 1.07.

Pipilo erythrophthalmus.—(May 22.) Nest placed in the ground under the shadow of an overhanging bush; composed of dead leaves and weed stalks, lined with fine dry grass and plant stems. It contained three fresh eggs, averaging .97 x .75 in size.

Turdus fuscescens.—(May 29.) A nest of this species containing two eggs, located in an evergreen bush about three feet from the ground, but upon visiting it later both nest and eggs were found destroyed.

(June 25.) Nest on the ground at the foot of a small bush; composed of leaves and vine-bark, lined with fine black rootlets and plant stems. It contained three fresh eggs, averaging $\cdot 88 \times \cdot 70$ in size.

Chætura pelagica.—(June 7.) Nest formed of coarse twigs, fastened together with the saliva of the birds, placed in an unused chimney of a house in the suburbs of the city. It contained five eggs, slightly incubated. Average size, $\cdot 82 \times \cdot 54$.

Ardetta exilis.—(June 12.) Nest—very compact for this species—placed in a clump of green rushes; composed of small rushes and reeds, with a thin lining of finer pieces of the same. It contained four fresh eggs, averaging $1\cdot 23 \times \cdot 94$. This species evidently rears two broods in the year in this locality, as I have found eggs as late as August.

Actitis macularia.—(June 16.) Nest—a shallow depression in the ground, near the lake shore—thinly lined with grass, containing four fresh eggs, averaging $1\cdot 28 \times \cdot 95$.

Ægialitis vocifera.—(June 18.) Two nests, or rather nesting sites, of the Killdeer were found on Toronto Island, one containing four, and the other, one egg. In both instances the eggs were laid in a slight depression in the gravel, no other sign of a nest being visible.

Vireo olivaceus.—(June 19.) Nest composed of strips of bark and flexible plant stems, lined with a little fine dry grass, and fastened by the rim to a young oak sapling, about seven feet from the ground. It contained three fresh eggs, averaging $\cdot 84 \times \cdot 60$.

Myiarchus crinitus.—(June 22.) A nest of this species was found in the suburbs of the city, placed in the hollow of a live apple tree, about twelve feet from the ground. The cavity, which was about ten inches in depth, was lined with fine grasses and plant stems, and contained five fresh eggs, averaging $\cdot 92 \times \cdot 67$ in size.

Chordeiles virginianus.—(June 28.) Two eggs of this species were found laid in the gravel on the flat roof of a house in the outskirts of the city, averaging $1\cdot 20 \times \cdot 86$.

Contopus virens.—(July 1.) Nest placed on the horizontal limb of an apple tree, about twelve feet from the ground, formed

of weed stems and grasses, and externally covered with lichens. It contained three fresh eggs, averaging $.74 \times .59$.

Junco hyemalis.—(July 19.) A nest of the Junco was found in the side of a bank in the ravine at the back of St. James' Cemetery. It was formed of grasses and plant stems, lined with hair, and contained four eggs, which were far advanced in incubation.

The following were also observed breeding, but no records were kept: *Merula migratoria*, *Melospiza fasciata*, *Melospiza georgiana*, *Spinus tristis*, *Galeoscoptes carolinensis*, *Harporhynchus rufus*, *Seiurus aurocapillus*, *Gallinula galeata*.

GENERAL NOTES.

CARPODACUS PURPUREUS.

(March 3, 1892.) I should like to report an unusual migration of purple finches this winter. They appeared in the Asylum grounds on January 28th. One of the inmates called my attention to the fact that finches had arrived in large numbers, and showed me four male finches in brilliant plumage that he had trapped. The birds were feeding on small crab apples, that had not been worth picking from the trees last fall. The birds take the pulp as well as the seeds of the crab apple. Sometimes as many as twelve finches are to be found in one tree, and, to give you an idea of the numbers here, I may say that the patient trapped nineteen in a few days, but set many of them at liberty, as he wished to retain male birds in brilliant plumage for cage pets. The finches are still with us (March 14th), although not in such numbers as at first. Yesterday four were in one crab apple tree. Both sexes are well represented. I have never known a purple finch winter in Kingston, and scarcely think that these birds have remained

with us all season. There were a few mild days about the time of their appearance, and it seemed as if they had come from the south.

(April 1, 1892.) Purple finches are still with us, and seem to be much driven to get a supply of food. They are to be seen even on the roads, picking up anything that they can find.

Kingston, Ont.

C. K. CLARKE, M.D.

Accipiter cooperi.—Mr. Spanner informs me that he has received two specimens of Cooper's Hawk. One was shot on September 18th at Scarboro', and the other on October 4th at Ashbridge's Bay. These were mature birds.

HUBERT H. BROWN.

Phalacrocorax carbo.—Black Cormorant.—A specimen was shot on the Rouge River, in the Township of Pickering, in November, 1888, by Mr. Silverthorn, the village blacksmith. The bird was handed to Mr. Swallow, taxidermist, of Pickering Village, who mounted it and held for sale for some time. He may have it still.

Port Union.

THOMAS CHESTER.

Cathartes aura.—Turkey Buzzard.—One shot near Brougham, Township of Pickering, in the summer of 1887. It was sent to Mr. Swallow, of Pickering Village, who mounted it, and it may still be in his possession.

Port Union.

THOMAS CHESTER.

BOTANY

IN READING over Mr. Frederick V. Coville's report of the Death Valley Expedition, I was very much pleased with his definition of the terms, range, locality, station and habitat. They are often misunderstood by botanists, and many have widely various meanings for them. For the benefit of those who have not access to his report, I take the liberty of quoting his remarks, as follows :

" In a discussion of the principles of plant distribution it is necessary that each term technically employed shall have a well-defined and uniform meaning. Among those words which have been used by various writers with great looseness, there are four which are of especial importance to us, range, locality, station, and habitat. One has merely to refer to our common botanical textbooks and dictionaries to find the lack of clearness in the definitions of these terms, while an attempt to use the words as defined impresses one with the necessity of reviewing their meaning.

" Of these words the one which has historic precedence is *habitat*. It has been used at various times to express the different meanings which are now conveyed by all four words, and from this fact an unfortunate confusion has arisen. Another circumstance that has contributed to the cloudy understanding of these terms is that a technical meaning, not in accord with its popular use, has been ascribed to one of them. The word referred to is *station*. This term is sometimes employed to express the kind of place in which a plant occurs ; but its historic use in the language is to indicate position merely.

" The meanings that should logically be attached to these words are as follows :

" *Range*—The range over which a type spontaneously grows.

" *Locality*—The approximate geographic position of an individual specimen.

“*Station*—The spot upon which a specimen has been collected or observed.

“*Habitat*—The character of the place in which a type occurs.

“In these definitions the word *type* is a general expression for which in particular cases variety, species, genus, or the name of any group may be substituted.”

I hope our readers will take these facts into consideration, when making collections and field notes.

NOTE.—In the proposed Herbarium, which is to be established in connection with our society, we have decided to follow the arrangement and numbering of Patterson's Check-list of North American Plants, and articles published in this journal relative to plants will have the number, according to that list, following the name of the plant heading the article.

C. W. ARMSTRONG.

RUBUS CANADENSIS (LINN.) P.L. 2968.

DEWBERRY.

THIS SOMEWHAT neglected “berry-bush” is common in southern Ontario, growing on high, dry, untilled, sandy fields and often on dry clay hills. In habit, as in habitat, it differs very much from its nearest Canadian relative, the Thimbleberry (*R. villosus*), so abundant everywhere in Ontario, in old “burn-overs,” in slashes, in neglected clearings and in open woods; the grand profusion of beautiful white flowers such a conspicuous feature in the landscape foreground, and the large glossy black fruit such a boon to the early settler.

R. villosus, in favourable situations, has a vigorous upward growth, often somewhat reclining, the upper fourth usually bent in a horizontal direction, the canes often six feet long and over half an inch in diameter at the base, are armed with strong curved hooks, like cats' claws, so very “catchy” of the pants and dresses of the berry pickers.

In the typical form of *R. canadensis*, the canes trail on the ground; they are often ten feet long, of a uniform diameter of about $\frac{1}{4}$ inch, and armed with short, weak prickles. This form does not flower very profusely, and many of the flowers are infertile or produce "nubbins."

But there is a form, a variety of this species, common on sandy situations around Toronto, not trailing, more upright than the typical form, but reclining and curving more than *R. villosus*; it comes in between the two, and is considered by many to be a natural hybrid between them. Of course this is mere conjecture, and we may safely say that the origin of the form is unknown.

It is of this form I wish more especially to speak, and to recommend it to fruit-growers as a variety suitable for cultivation, or at all events well worth a trial. It most probably was a form very similar to this, which, in the Western States, gave origin to the cultivated varieties, the Windom and the Lucretia.

Around Toronto it is quite hardy, would not require any winter protection, thrives on very barren soil. It yields more abundantly than *R. villosus*, especially when a little shaded, or when growing on a hill-side sloping to the north; the fruit is more spherical, firmer, and better flavored, and there is not so much tendency to "nubbins."

There are over twenty varieties of *R. villosus* known to fruit-growers; a few of these have been in cultivation for half a century, but most of them have originated within the last twenty years.

From *R. canadensis* some six or more varieties have been tried with more or less success, and all are of quite recent origin.

Of the cultivated varieties of the Dewberry, it has been said by a competent authority, "The peculiar merits of the Dewberries, as cultivated fruits, are earliness and attractive appearance, and the ease with which they can be protected in winter." "The peculiar demerits of the Dewberries are the failure of the flowers to set, the formation of nubbins, and the difficulty of picking the fruit."

The specimen on which Linnæus based his original description, is of the low, trailing form, and I believe is now in the British Museum.

WM. BRODIE.

NOTES FROM MUSKOKA.

Botrychium ternatum intermedium GRAY.—This is somewhat rare in this locality, and found only when sought in secluded places, under cover of bushes generally, always in damp, mossy ground. The largest specimen I have found (September 28, 1892) measures 9' in height; the average is about 6'. The spores ripen about the end of September.

Ophioglossum vulgatum L. P.L. 12735. On September 28, 1892, I found a small patch of this plant growing among raspberry bushes, on the south side of a rocky hill. There were about a dozen plants growing close together, and averaging 8' in height. I secured three, the remainder being yellow and in various stages of decay. Last year I looked for them, but there was not half the number. I know that no one had removed them.

Habenaria tridentata Hook. P.L. 10079. On June 20, 1892, I found about half a dozen specimens growing on the margin of an ice-cold spring, in a dark cedar swamp. The largest among them measured 7' in height, the smaller ones 4' to 5'. These are the only specimens I have ever seen.

Habenaria orbiculata Torr. P.L. 10072. This is exceedingly rare; indeed, I only know of five specimens having been found in this vicinity, three of which I collected myself. These I have found in dry, shady woods, occupying a space clear from other small herbage. I have one before me now, which measures 14' in height, and bears twelve perfect blossoms. The leaves are $4\frac{3}{4}$ ' in diameter.

ALICE HOLLINGWORTH.

Falkenburg, Ont.

LIPARIS LÆSELII RICHARD.

Liparis læselii RICHARD. P.L. 10084.—Plate I.

Syn. *Ophrys læselii* LINN. SP. PL. 1341. With. Bot. Arr. 988.

O. lilifolia RELH. CANTAB. 537. Huds. Fl. An. 390.

Pseudo-Orchis bifolia palustris. Raii Syn. 382.

I found one specimen of this orchid on July 11, 1891, growing in a moist, mossy situation, facing the south on Scarborough Heights. There was only the one specimen to be seen, and it was near the top of the hillside; the soil was sandy, of a springy nature, and well shaded. Plant 8' high; leaves respectively 5' and $4\frac{1}{2}$ ' long, by $1\frac{3}{8}$ ' and $1\frac{1}{4}$ ' wide; it had eleven flowers; pedicels average 3", and lip 2" long; scape $5\frac{1}{2}$ ' high; the previous year's bulb was still green and solid at the side of the present stem.

Macoun's Cat. of Can. Plants quotes it as having been found in Ontario, near Ottawa, Belleville, London, Oak Hills and Campbellford, all in swamps and bogs.

Speaking of this plant, James Sowerby, F.L.S., in his English Botany, Vol. III., 1794, says:

"Ray has mentioned this plant as the production of some moors in the neighbourhood of Cambridge; but those moors were long searched for it in vain by succeeding botanists, till the Rev. Mr. Relhan discovered it a few years ago growing, not very sparingly, where Ray has reported. This gentleman attributes its remaining so long latent, to its usual situation close to the stems of rushes.

"Mr. Pitchford many years ago found, in a meadow at St. Faith's, near Norwich, one single specimen, which he afterwards presented to the Rev. Mr. Lightfoot.

A confusion, which originated with Linnæus, has long existed between this plant and his *Ophrys lilifolia*. We can assure the public, on the authority of his herbarium, that the latter is only found in America, and that the European synonyms, which he has in several parts of his works applied to that species, really belong to ours."

Bentham and Hooker, in their British Flora, 1887, give its

habitat and range as follows: "In bogs and wet places of central Europe, from southern Scandinavia and western France to the Russian frontier. In Britain, only in the eastern counties."

C. W. ARMSTRONG.

THREE RARE GRASSES.

Leersia virginica WILLD. P.L. 12078. Culm slender, from a creeping root-stock. I found it decumbent through herbage in low wet grounds, in Castle Frank Valley on September 14, 1892.

Oryzopsis canadensis TORR. P.L. 12166. Culm cespitose; naked above, leaves involute. I found it in open sandy soil, east of Victoria Park on May 2, 1892. 8' and not more than 12' high.

Eragrostis major HOST. P.L. 11966. Culms densely tufted, geniculate; panicle, large, of flattened spiklets. I was fortunate enough to find an isolated patch of this beautiful species, in a meadow at the foot of the west bank of the Don Valley on September 1, 1891. I have watched it ever since, and it is gradually crowding the *Poa pratense* L. out around it, notwithstanding the *Poa* has the start of it in the spring.

W. H. BLASHFORD.

PTEROSPORA ANDROMEDEA NUTT. P.L. 6641.

On August 29, 1891, I was walking with some friends through Scarboro Heights, and we came upon one solitary specimen of this plant in a small ravine just east of Victoria Park, in a grove of pine (*Pinus strobus* L.). It was in fruit and had over thirty seed capsules on it. Height, 20½'.

On July 17, 1892, I found three specimens on the high, rocky ridge, behind the town of Grimsby, on the south shore of Lake Ontario. Two of them were growing together, exactly in the centre of a triangle, formed by a tree each of *Pinus strobus* L.,

Tsuga canadensis CARR. and *Thuja occidentalis* L. The plants were growing directly on a root of one of these three trees, but I do not know which. The other plant was in a grove of *Tsugas* and *Thuyas*; they were all growing in black, loamy soil. Height, 19½', 19', 18', respectively.

In the Cat. Can. of Plants, we find it recorded in Ontario at the following localities: "In the vicinity of Ottawa, Belleville, Canniffton, Meyersburg, Hamilton and Niagara Falls, and along the Humber a little west of Toronto."

Prof. Macoun is the authority for the last named locality. From his wording I presume he did not find it isolated. I never saw it myself in that locality, nor has anyone else that I know of.

C. W. ARMSTRONG.

SCHWEINITZIA ODORATA ELL. P.L. 6676.

On July 19, 1891, I found one clump of this *Erica* in the vicinity of Mr. Lea's farm, on the west bank of the Don Valley. It was growing in light, sandy soil, in second growth hardwood (mostly maple bush; the clump consisted of five stems, the tallest of which measured 10 7-16' high.

Prof. Macoun does not place this plant in his Catalogue of Canadian Plants, therefore, I might presume, he has no record of its existence in Canada. I have found it in another part of Ontario, which record I will place with this REVIEW when I have had time to work up its range and habitat during the coming summer.

C. W. ARMSTRONG.

ENTOMOLOGY.

CANADIAN GALLS AND THEIR OCCUPANTS.

DIPLOSION HELIANTHI, N. S.

GALLS found in the leaf axils, on the upper third of the stems, of *Helianthus decapetalus* and *Helianthus divaricatus*, growing in open woods or in shaded situations ; from 1—10 galls in an axil,

GALLS OF *DIPLOSION HELIANTHI* N.S.

firmly attached to the stem by an expanded base, projecting in various directions, usually upwards, often at right angles to the stem and occasionally downwards ; galls from 10—25 mm. long, and from 1.50—5 mm. in diameter, curved more or less regularly from a radius of 10 mm. to nearly straight, usually more or less cylindrical, occasionally flask shaped, widest at the base,

surface often with deep longitudinal flutings; distal end with an expanded mouth, which is sometimes uniform like that of a cornet, but is usually cut into two or more triangular, petal-like, reflexed, appendages; mouth with an abundance of greyish pile.

These galls do not appear to be from leaf buds, and I have not yet found a leaf deformed by them. I have, on a few occasions, found galls growing from flower discs.

In September, 1884, I made a collection of thirty-one of these galls in Toronto High Park. Producers began to come out April 20th, 1885, and parasites some time later.

The gall, the producer and the two species of parasite bred from it, so far as I knew, were undescribed species, and I gave to the producer the provisional name *Diplosis helianthi*, and to one of the two parasites, having an unusually long ovapositor, *Torymus longior*, and to the other *Torymus helianthi*, for convenience in my collection.

A lot of forty-seven galls, collected from the banks of the Humber in the fall of 1887, gave producers and parasites from May 10th, 1888, to June 25th, 1888.

A lot of over 200 galls was collected October 9, 1892, and April, 1893. Producers emerged from May 16, 1893, to June 19, 1893, sparingly towards the last date; they were most numerous May 29 to May 31. From May 26, 1893, to June 11, *Torymus longior* emerged, ♀s preceding ♂s. From June 1 to July 7, *Torymus helianthi* emerged. From June 4 to June 9 a small parasite, a *Copidosoma*, emerged. On May 30, a pretty little tineid moth emerged; expanse of wing, 7 mm., with a deep, pale brownish fringe and two brownish lines on the primaries, commencing about the middle of the outer margin, and running backwards and inwards, but not reaching the inner margin; these brownish lines are separated by a white line of about equal width.

This tineid appears to be generically identical with inquiline species, occasionally found in willow and other galls. On May 20, one ♂ *Ormyrus*, and on June 6, a very pretty, small, straw-colored cecidomyid inquiline emerged.

Diplosis helianthi is of full generic size, of a smoky, dark

color; the wings, with abundant dark pile; the venation is typical of *diplosis*. The first longitudinal vein, slightly separated from the costa, coalesces with it about its middle; the second, curving gently backwards, reaches the tip of the wing, where it joins the stout costa, which there becomes abruptly attenuated; the third forks about the middle, one branch bending abruptly to the outer margin, the other extending upwards and outwards, touching the margin where it bends slightly inwards. There is a rudimentary vein, springing from the base of the second longitudinal vein and running some distance upwards, about midway between it and the third. I have found no trace of a cross vein between the first and second longitudinal veins. The antennæ of the ♂ is 26-jointed, that of the ♀, 14-jointed; numerous specimens.

Torymus longior has the front of the head bright brassy, with purple reflections, with five longitudinal lines of short, stubby, pale spines; eyes, pale brown; scape of antennæ, pale; occiput, bright brassy green; thorax, dull brownish green, with brassy reflections; dorsum of prothorax, bright brassy green; abdomen, dark purplish blue, with bright brassy reflections; ovapositor, more than twice as long as body and head; middle and hind femoræ, very bright steel blue, much brighter than the abdomen; all the tibiæ, pale coppery brown; tarsi, pale; claws dark; numerous specimens.

Torymus helianthi has the head of uniform bright, metallic green; eyes, pale brown; scape of antennæ, pale; thorax and abdomen, bright metallic green, abdomen with steel blue reflections; ovapositor, about as long as abdomen; legs, pale straw color; hind tibiæ, pale brown; tarsi, pale, tipped with brown; numerous specimens.

On June 23, 1893, these galls were nearly full grown, of a greenish color, similar to the stem of the plant, and of an herbaceous texture. On July 27 they were mature, rigid and hard, and of a greenish purple color. This is the most common of the three *helianthus* galls found near Toronto.

WM. BRODIE.

COLEOPTERA TAKEN IN OXFORD CO., ONT., 1892.

BY DANIEL G. COX.

IN the early part of the month of June, 1892, I spent a few days among my friends in the County of Oxford, between Blenheim and Woodstock, and during that time collected many species of Coleoptera, and, thinking it may be of some interest to our young entomologists, I append the following list of species taken, those marked with an asterisk being additions to the Canadian list :

Cicindelidæ.*Cicindela 6-guttata Fab.***Carabidæ.***Cychrus lecontei Dej.**Calosoma calidum Fab.*" *frigidum Kirby.**Nebria pallipes Say.**Bembidium rupestre Dej.*" *patruelæ Dej.*" *intermedium Kirby.*" *pictum Lec.**Tachys nanus Gyll.**Patrobus longicornis Say.**Pterostichus honestus Say.*" *coracinus Newm.*" *lucublandus Say.*" *caudicalis Say.*" *luctuosus Dej.*" *corvinus Dej.*" *luczotii Dej.*" *erythropus Dej.*" *patruelii Dej.*" *lacrymosus Newm.**Amara pallipes Kirby.*" *impuncticollis Say.*" *interstitialis Dej.*" *obesa Say.**Diplochila major Lec.*" *impressicollis Dej.**Dicælus teter Bon.*" *politus Dej.**Calathus gregarius Say.**Platynus sinuatus Dej.*" *extensicollis Say.*" *melanarius Dej.*" *cupripennis Say.*" *nutans Say.*" *placidus Say.*" *ruficornis Lec.**Læbia atriventris Say.**Brachynus perplexus Dej.*" *fumans Fab.**Chlænus sericeus Forst.*" *pennsylvanicus Say.*" *tomentosus Say.**Anomoglossus emarginatus Say.**Agonoderus pallipes Fab.**Harpalus viridiæneus Beauv.*" *pleuriticus Kirby.**Stenolophus conjunctus Say.**Anisodactylus discoideus Dej.*" *baltimorensis Say.***Silphidæ.***Necrophorus marginatus Fab.*" *tomentosus Web.**Silpha lapponica Hbst.*" *inæqualis Fab.*" *novaboracensis Forst.*" *americana Linn.***Staphylinidæ.***Aleochara lata Grav.**Listrotrophus cingulatus Grav.**Creophilus maxillosus Grav.*

Philonthus cyanipennis *Fab.*

Stenus, sp.

Pæderus littorarius *Grav.*

Coccinellidæ.

Anisosticta strigata *Thunb.*

Hippodamia 5-signata *Kirby.*

" *13-punctata* *Linn.*

" *parenthesis* *Say.*

Coccinella trifaciata *Linn.*

" *9-notata* *Hbst.*

" *tricuspis* *Kirby.*

Adalia bipunctata *Linn.*

Psyllobora 20-maculata *Say.*

Chilocorus bivulnerus *Muls.*

Erotylidæ.

Dacne 4-maculata *Say.*

Megalodacne heros *Say.*

Mycotretus sanguinipennis *Say.*

Tritoma thoracica *Say.*

Colydiidæ.

Philothermus glabriculus *Lec.*

Cucujidæ.

Silvanus imbellis *Lec.*

Brontes dubius *Lec.*

Cryptophagidæ.

Atomaria, sp.

Mycetophagidæ.

Mycetophagus punctatus *Say.*

" *flexuosus* *Say.*

Triphyllus humeralis *Kirby.*

Dermestidæ.

Orphilus glabratus *Fab.*

Histeridæ.

Hister lecontei *Mars.*

Nitidulidæ.

Nitidula bipustulata *Linn.*

" *rufipes* *Linn.*

Phenolia grossa *Fab.*

Omosita colon *Linn.*

Elateridæ.

Alaus myops *Fab.*

Cryptohypnus abbreviatus *Say.*

Elater linteus *Say.*

" *nigricans* *Germ.*

" *sanguinipennis* *Say.*

" *apicatus* *Say.*

Dolopius lateralis *Esch.*

Lampyridæ.

Ellychina corrusca *Linn.*

Telephorus, sp.

Cleridæ.

**Necrobia violaceus* *Linn.*

Lucanidæ.

Lucanus dama *Thunb.*

Ceruchus piceus *Web.*

Passalus cornutus *Fab.*

Scarabæidæ.

Aphodius fossor *Linn.*

Chrysomelidæ.

Xanthonia 10-notata *Say.*

Chrysomela bigsbyana *Kirby.*

Gastroidea polygoni *Linn.*

**Lina lapponica* *Linn.*

* " *scripta* *Fab.*

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Galerucella sagittariae *Gyll.*

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THE BIOLOGICAL SOCIETY OF ONTARIO.

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MAMMAOLGY.

THE PANTHER IN CANADA.

THE following extracts are from a paper by Mr. W. P. Lett, of Ottawa, published in Vol. I, page 127 of the *Ottawa Naturalist* :

“It abounded at one time in the valley of the Ottawa in considerable numbers.”

“The cougar which you may see, very inartistically and unnaturally set up in the glass case before you, must have been, when living, a remarkably fine specimen. As nearly as possible, he must have measured seven and a half feet from nose to end of tail. He was shot by a boy named Bentley upwards of forty years ago, on Croil's Island, on the south side of the St. Lawrence River, opposite Farran's Point, about ten miles east of Morrisburgh, with an iron spike or nail. The youth killed the animal with a single shot, a sporting exploit sometimes found difficult of accomplishment by experienced hunters.”

“About one hundred years ago the panther was found in every part of Ontario and Quebec. I have been assured, by reliable authority, that about forty years ago (1847) two large specimens were frequently seen near the Village of Lachute, in the Province of Quebec.”

“On two or three occasions, many years ago, I heard in the thick forest near the Village of Richmond, and afterwards in the Township of Huntley, some strangely startling and frightful screams, which I attributed to the cougar. Be this as it may, I have heard no screams of the same kind for the last thirty years.”

ZAPUS HUDSONIUS COVES.

THIS pretty little rodent has a geographical range from the Southern States to Hudson's Bay and from the Atlantic to the Pacific, and also a range of about fifty synonyms.

During the time of the early settlements in the County of York this little “jumping mouse” was very common, and at haying times the boys had many excited hunts after them, but very few were caught.

No doubt it is generally distributed over Ontario. I have in my collection four specimens from the neighborhood of Toronto, one of which was caught in a mouse trap, one dug up in the winter time, while hybernating, one taken from the craw of a Rough-legged Buzzard, and one which I caught in my insect net.

I have one specimen from Magnetawan, Muskoka ; two from Galt, one from Leamington, and one from near Bobcaygeon. This shows a wide provincial range. We will be greatly obliged for any authentic, original information as to the occurrence and habits of this animal in our Province.

Toronto.

WM. BRODIE.

ORNITHOLOGY.

CAPTURE OF THE CLAY-COLORED SPARROW IN ONTARIO.

ON May 9, 1894, while hunting in a field of small shrubs, about fifteen miles west of London, I was attracted by a "dzzz-dzzz-dz-dz" very similar to the song of the Golden-winged Warbler, yet different in tone. Expecting to find a Golden-wing at the end of the note, I could hardly believe my eyes when I came upon a small sparrow sitting on the top twig of a shrub, after the manner of the Field Sparrow, and saw him give the note whose author I was looking for. It proved to be a *Spizella pallida*, the first, I believe, in our Province, though they may yet be found inhabiting the north-western extremity, next to Manitoba. I heard a Golden-wing near the edge of the same field, but on looking him up he was a true Gold-wing, and I was unable to hear or see any more Clay-colors.

London, Ont.

W. E. SAUNDERS.

CISTOTHORUS STELLARIS.

IN the first number of the BIOLOGICAL REVIEW I notice that Mr. Nash believes his specimen of the Short-billed Marsh Wren to be the only Ontario record. In the first edition of Mr. McIlwraith's book there are no definite records given, except of a set of eggs which I have, taken by Chas. Shuttleworth, of Toronto, in the Toronto Marsh, about the year 1883. The reference to the birds in the St. Clair marsh is not detailed, but Mr. Morden certainly took several specimens there. Nevertheless, the localities where this bird spends the summer in

Ontario are few and little known, and it is interesting to know of one breeding ground having been found where it is steadily common.

On June 17, 1891, while botanizing in the bed of the drained "Lake Wawanosh," near Sarnia, without a gun, I heard some birds singing which, after careful study, I decided belonged to this species, but I could not positively identify them by reason of the lack of the necessary implements. On May 30, 1892, I visited the same place again, prepared for business, and settled the doubt by the capture of two specimens of this species. There appeared to be a fair sprinkling of the birds, but I could find no trace of a nest, old or new, which led me to guess that they breed on the ground in that locality, contrary to the accepted ideas of their habits. The patches of bulrushes in the basin were few and small, and I am positive contained no nests. The song of this bird, though similar to that of the Long-billed Wren, differs sufficiently for one to distinguish it readily; in fact, when I heard the first song in 1891 I thought it was a Dickcissel, and the resemblance between the songs of the two Wrens, while near enough to establish a relationship, is not close enough to deceive a practical ear. The peculiar part of the affair to me was the entire absence of the Long-billed Wren, and the fact of the birds living away from the bulrushes, in the region of the long marsh grass. I was informed the other day that Mr. Joseph Beck, of Plover Mills, Middlesex County, observed a pair of small Wrens, which he could not identify, in a field of long grass, where they spent the summer; and in the light of their habits at Wawanosh, it seems entirely probable that they may have been of this species, as Mr. Beck is well acquainted with both the House and the Winter Wrens.

London, Ont.

W. E. SAUNDERS.

THIRD SPECIMEN OF *ARDETTA NEOXENA* TAKEN AT TORONTO.

THE first notice we have of this species being found in Ontario is recorded in a note by Mr. W. Cross, in Proc. Orn. Sub-section of Canadian Institute, 1890-91, p. 41, where it is

stated a specimen was captured on Toronto Island on May 18, 1890.

This bird Mr. Cross presented to the Canadian Institute, where it is at present.

A second specimen, which was taken on May 20, 1893, in Toronto Marsh, was reported by Mr. Hubert Brown, in *The Auk*, Vol. X, 1893, p. 363.

This specimen was sent, for examination, to Mr. William Brewster, who says "it agrees very closely with a skin taken at Lake Flirt by Capt. Menge, and referred to by Mr. Scott (*Auk*, IX., 1892, p. 142) under catalogue number 11,451.

The Toronto bird is a trifle the darker on the back, and the chestnut of its under parts is slightly richer, but in other respects the two specimens are almost exactly alike."

On May 26, 1894, a third specimen was shot at Ashbridge's Bay, Toronto, by a Mr. Jacobs, who flushed it with an *exilis* from a clump of reeds. Both birds were secured and found to be males.

Mr. Peter Jacobs, taxidermist, purchased them from the collector, and later the specimen of *neoxena* came into my possession.

Description : Top of head, cervix, back and scapulars, black, with a decided green shade ; sides of head, throat and wing coverts, shade from cinnamon to chocolate, lightest on the chin, darkest on sides of neck and on wing coverts ; remiges, entirely blackish slate ; under tail coverts, dull black ; upper mandible, dark brown ; tomia, yellow ; lower mandible, light brown ; wing, $4\frac{3}{4}$, extent, $6\frac{1}{4}$; bill, $1\frac{3}{4}$; tarsus, $1\frac{1}{2}$; toe, $1\frac{1}{2}$; length not taken.

On comparing the three specimens, I found that the one shot in the summer of 1890 was identical with that obtained in 1894, with the exception of the wing coverts, which are a little darker.

The female shot in 1893 is black on the crown only, and the back of the neck is a dark rufous-chestnut ; back, black, with a decided brown shade, not green as in the other two. The remainder of the colors correspond, with the exception of one or two white feathers on the legs.

This makes the ninth specimen so far known in collections.

Toronto.

J. H. AMES.

FOURTH SPECIMEN OF *ARDETTA NEOXENA*
AT TORONTO.

(July 16, 1894.) Yesterday while going through Toronto marsh I had the good fortune to find Cory's Bittern (*Ardetta neoxena*), it was a little east of the south shore buoy and just in the act of alighting a little behind me when I caught sight of it, and at first mistook it for a Virginian Rail, but on a second sight its long legs showed clearly it was not. I pushed as close to the rushes as I dared, and watched it for about a quarter of an hour, and turned to leave it, all the time wishing I had my gun. After going some fifty yards, I returned to have, as I thought, a last look at my rare friend. This time I got so near it that Miss Phillips suggested I hit it with an oar. Happy thought! I took the hint, so did the Bittern, and he flew to the other end of the rushes, but again let me get within a couple of yards of him, and this time I had the good luck to knock him over. While watching it, its actions were altogether different to any other Bittern I have ever seen, for instead of standing erect when observed, as is the habit of most of the family, it would crouch down until it was only the size of a Virginian Rail, its long neck altogether out of sight. It had a very slow, sneaky walk, grasping a single rush with one foot and striding as far as possible to grasp another. It seemed to be feeding on insects on the lily leaves at the foot of the rushes, as it would every few seconds dart out its neck with lightning rapidity and take something off the leaves.

Toronto.

CHARLES PICKERING.

The bird referred to above was handed to me by Mr. Pickering for examination, and following is the description of it. The terms used in defining the colors were taken from Ridgway's "Nomenclature of Colors," with which the bird was compared: Specimen ♀, in good condition. Total length from point of beak to end of middle toe claw, 16.2'; the same with moderate extension, 17.2'; expanse of wings, 16.2'; wing, 4.70'; gape, 2.2'; from point of beak to centre of eye, 2.3'; in length of nasal aperture, 0.4'; beak, measured at nostril, 0.3' wide; tail,

1.6' long; tarsus, 1.75'; inner toe with claw, 1.4'; middle toe with claw, 1.75'; claw on middle toe serrated on inner side with thirteen blunt teeth; upper mandible, black; lower, raw umber; crown and dorsum of neck, black; back, black margined with decided shades of brown; throat and under part of neck of a rich burnt umber; belly to tail, olive brown shading to vandyke brown, darkest on the outside; scapulars and tail, black tinged with shades of metallic green; the primaries, secondaries, primary coverts and greater coverts, blackish slate with a brownish tinge on the primaries; the greater coverts are tipped centrally with burnt umber; other wing coverts, burnt umber; eye, chrome yellow; tarsus and upper side of toes, olive green; soles, chrome yellow; about 0.3' of tibia above tarsus, bare; contents of stomach, thirty-four small fish, bass? Several of the ova were 0.1' in diameter.

Toronto.

WILLIAM BRODIE.

Those who wish to look up the published records of this interesting bird will find references to it in:

The Auk, Vol. III., April, 1886, p. 262—C. B. Cory.

Ibid. Vol. III., July, 1886, p. 408—C. B. Cory.

Ibid. Vol. VI., 1889, p. 317—W. E. D. Scott.

Ibid. Vol. VIII., July, 1891, p. 309—C. B. Cory.

Ibid. Vol. VIII., July, 1891, p. 309—W. E. D. Scott.

Ibid. Vol. IX., April, 1892, p. 141—W. E. D. Scott.

Ibid. Vol. IX., July, 1892, p. 214—W. E. D. Scott.

Ibid. Vol. X., October, 1893, p. 363—H. H. Brown and Wm. Brewster.

Robt. Ridgway, *Man. N. A. Birds*, 1887, p. 127.

Dr. Elliott Coues, *Key N. A. Birds*, 1892, pp. 888, 905.

Proc. Ornith. Sub-section of Can. Inst., 1890-91, p. 41, "A new species for Ontario," by Wm. Cross.

THE NESTING OF THE WINTER WREN.

THE latest date on which any of this species had been here previously was about the middle of November, while the earliest record of its advent in spring was the last week in March.

This season, however, I saw one on January 23, 1894, in a woodland dell, which it frequents during the summer, and near where I had found two nests.

On March 30, I again heard it in the same place, and from that date they became more common.

Toward the centre of our sugar bush, and not far from the "camp fire," the ground is rather low, and here most of the larger timber was uprooted by that terrible windstorm of April 20, 1893. Having noticed the Winter Wrens frequently during April, in this bush, I expected that they were going to nest here again, and a search on May 2, was rewarded with the discovery of a nearly completed nest in one of the highest roots.

I think it was four days later that I again visited it, when it contained four eggs; on the 9th, I flushed the bird from her nest, which I carefully removed from its place in the soil and fine roots, and found the number of eggs to be six, which were apparently pure white, but if held up to a strong light, after being blown, the minute markings, with which the larger part of the surface is dotted, become visible.

The site of the nest was about six feet above the ground or rather water, which filled the space out of which the root had been torn.

The nest resembled a round ball of moss, with an entrance hole on the outer side. It measured over twelve inches in circumference.

The exterior was almost wholly composed of a species of moss, common on the lower parts of trees and logs in low grounds. Around the entrance are a number of the stalks of hemlock leaves, while the inside is neatly lined with fine vegetable matter, hair and feathers.

This set was completed on the 8th of May, and is the earliest date I have ever taken their eggs.

Of the seven nests collected in this vicinity, four contained six eggs each, and three, five; all of these were built in the upturned roots of fallen trees, which is evidently their favorite nesting place, though it certainly builds in other situations.

Listowel, Ont.

WM. L. KELLS.

PASSERELLA ILIACA, 1888-1894.

My first experience with this large and handsome Sparrow occurred during the first year of my scientific collecting, and such was the interest manifest in the birds I had collected, and so unusual seemed the report I made of them, I decided to look more closely for the bird in future and keep accurate records of my observations, and they are not without success.

In October 1888, I was collecting on Well's Hill, north of Toronto, when I startled several of the birds which were feeding on the ground at the edge of the bush among a few small witch-hazels. I secured two specimens. I allowed the birds to stand until they were too far gone to preserve. Gathering up the unskinned birds with some other bodies, I took them to Dr. Brodie, who wished to examine stomachs. I was greatly surprised and annoyed to find that I had met with a flock of birds supposed to be very scarce about Toronto and had allowed myself to be contented with two specimens when I might have taken six or eight, and had even allowed those to spoil. The next time I met them was on October 26, 1889, when I collected one specimen in a swamp north of St. Clair Avenue, as recorded in the Proc. Orn, sub. C.I., No. 1, p. 118. This was mounted and is now in the collection of the Canadian Institute. This was the only one I heard of that year. On April 13, 1890, I came on a large flock of the birds in the University ravine, altogether about twenty-five or thirty birds were distinctly counted hunting among the old leaves, and several males were warbling their beautiful little song from the tops of the beeches. This account was recorded in Proc. C.I., No. 2, p. 29. That season I collected five specimens, of which Dr. Brodie, Mr. Cross and J. R. Thurston respectively obtained one.

In the fall of 1890 they returned to their old haunts, and I secured six, as recorded in Proc. C.I., No. 2, p. 53, of these Mr. Cross obtained two, and J. R. Thurston one.

In the spring of 1891 I was again on the lookout, and as regular as clockwork the birds appeared at their former haunts, and I secured five, and on the return migration in the fall I took nine. In the spring of 1892 the Fox Sparrows arrived in their usual numbers, and I secured seven of them.

I was away from the city in the fall of 1892, and so far I can only learn of one specimen being taken anywhere about the city, although the birds must have returned as usual by the old route. In the spring of 1893 I watched with the usual interest, and at the regulation time, and secured seven, several of which were obtained by Mr. J. H. Fleming and one by Mr. Spanner, and four of the remaining specimens are now in the collection of the Biological Society of Ontario.

On October 2 a male bird was secured, being the only one seen. October 6 a second male was secured, and on October 13 a female was taken, all being in company with White-throated Sparrows and Juncos. A storm of wind and rain on October 13 and 14 started the migration in full, and Fox Sparrows were the commonest birds in the woods. On October 16 I secured five, October 17 nine, October 18 seven, October 19 six; or a total of thirty birds in three weeks, and I am confident I could have secured double the number had I persisted in collecting them. This spring (1894) all bird life was scarce, yet I observed five Fox Sparrows at their old resorts, but I did not collect any. All told, I have in nine migration seasons collected seventy-two, and of this number thirty are in my collection; and at the present time there are specimens in collections of the Biological Society of Ontario, Wm. Cross, Oliver Spanner, J. H. Fleming, J. H. Thurston, G. F. Dippie, A. E. Dowson and the Canadian Institute, all of which are my collecting; and from what I can learn outside I don't think there have been a dozen collected by all other Toronto collectors in that time, and very few observations have been made of them. One would not wonder if it were an insignificant bird or one difficult to recognize in the woods at its not being observed more frequently, but on the contrary, I think, for real beauty of plumage, grace of movement and elegance of shape, there are few birds on the list can compare with it and its habits are such as to make it easily recognizable to the practiced eye or ear. It is a bird among birds, being of a quiet, retiring disposition; its song and plumage are quiet and soft, yet exceedingly beautiful, with none of the gay, dashy color of the Grosbeak or Tanager, nor the curiosity of the Blue

Jay; it is content to live a exemplary life among its riotous associates, the White-Throated Sparrows and the less noisy chattering Juncos. On their arrival in the spring they will be found in various parts of the woods scratching vigorously among the dead leaves, and raising commotion enough for a bird double its size, often allowing a very near approach before rising. Once started they are very wild, and mount directly to the tops of the thickest cedars or pines and conceal themselves, at the same time calling loudly to all the others to be on guard. As soon as you catch sight of him in the tree he is off, not to the next tree, but for a good long fly to another part of the woods, where he again settles down to scratching for his living.

They are rather difficult to collect, but with a little caution, any student may approach them within easy distance and watch the actions of a flock apparently unobserved. On a bright day in spring the males will often mount to the top of a tall hardwood tree and regale the woods and its inhabitants with a song, similar to the run of the song of the Baltimore Oriole but very much subdued, more of a flowing flute-like note which, however, can be heard at a good distance. The call note of the birds when startled or moving is almost exactly the same tone as that of the White-Throated Sparrow, the only difference I can detect is, the Fox Sparrow seems to say *pecte*, while the White-Throat calls *cheep* less than half a tone higher. In following the birds by this call I have frequently taken the White-throats in mistake for the Fox Sparrow.

Their migration is very regular. They always appear on their northward journey about the 12th of April, unless the season is a late one, and remain about seventeen days in the neighborhood, first appearing in the southern end of the University ravine, working northwards, and about three days after the first bird is seen in the City they appear on the hill, and in three weeks from the first City observation the last birds have left the woods on the hill. While on the hill, they may be found in every locality on both sides and the bottom of the ravine, among the witch hazel and second growth hardwood, and also among the thick pines on top of the hill. An examination of the woods on the Humber banks and up the Don

valley has shown that very few take those courses in migrating, preferring to cross over the centre of the City. During the past three seasons a few have been observed on Rosedale heights, about a mile west of the Don, and I have observed a few in the ravines north of High Park, about a mile east of the Humber River; but that seems to be the outside of the flock, and only stragglers are taken beyond this. I have closely examined the woods for some miles north of the City, and found very few birds, which might indicate that they rise in a body and fly northward till they strike the next elevation of land. On the return in the fall they come over precisely the same route as they travelled in the spring, arriving on Wells' Hill in the first week of October, and by the 21st they have almost entirely disappeared from the City. They certainly show a more direct line of travel than any other bird I have witnessed, and although they associate with the White-throats and Juncos while here, the movements of these in no way interfere with their own journey, as the White-throats hang around long after the Fox Sparrows have taken their departure. So much being said for the bird in his wild state, I will go farther and show him in captivity. Of the number I have collected I have taken four in traps. Being a seed-eating bird, they are comparatively easy to keep alive, the greatest difficulty being the moult in the spring. They show much of the same quiet, retiring disposition as seen in the wild bird, but they are somewhat confiding and seemingly very intelligent; they do not flutter and knock themselves about, like most of the Sparrows, when startled, and when talked to, show an inclination to listen to reason. They feed on almost every kind of seed, and are also very partial to insect food, being always first to seize a worm or grub dropped into the cage. They bathe and feed regularly, and are not as restless as their chums the White-throat and Song Sparrow. While they spend most of the day on the ground, they invariably mount to the highest part of the tree to roost at night. They are friendly with every other bird, and never attempt to interfere with them.

I have compiled the result of a careful investigation of twenty-six stomachs.

STOMACH CONTENTS.

1. Coll. October 16, 1893, female; contained a number of pieces of legs and piece of thorax of beetles, a small mass of broken seed; stomach fairly full; no gravel.

2. Coll. October 16, 1893, female; contained one whole bud and a mass of broken and crushed buds of witch hazel, a section of *Fulus canadensis* and fragments of beetles; stomach fairly full; no gravel.

3. Coll. October 16, 1893, female; contained several pieces of *Fulus canadensis*, broken seeds, probably *Cynoglossum*, and buds of witch hazel, six *Lampyridæ* larvæ, two larvæ of *Elater*; full; no gravel.

4. Coll. October 16, 1893, male; contained a mass of crushed seeds and buds, fragments of beetles and several *Lampyridæ* larvæ; partly full, with a few pieces of shale clay.

5. Coll. October 16, 1893, male; contained about sixteen or eighteen *Lampyridæ* larvæ; no gravel; stomach full.

6. Coll. October 17, 1893, male; contained a mass of crushed seeds and three buds of witch hazel, a few fragments of small beetles, a small quantity of sharp white sand, and a few pieces of shale clay; stomach partly full.

7. Coll. October 17, 1893, female; contained a small mass of broken seed, with a few small pieces of shale and some clear, shale sand; almost empty.

8. Coll. October 17, 1893, female; stomach partly full; fragments of *Fulus canadensis*, broken seeds and buds and a few fragments of beetles; a small quantity of clear, sharp sand.

9. Coll. October 17, 1893, male; stomach full; several whole buds of witch hazel and crushed seeds of *Cynoglossum*, one larvæ of Crane Fly, one spider and a head and fragments of beetles; no gravel.

10. Coll. October 17, 1893, female; stomach partly full; broken seeds, a few larvæ of *Lampyridæ*, a few minute particles of clear, sharp sand.

11. Coll. October 17, 1893, female; stomach full; broken seeds of *Cynoglossum* and buds of witch hazel, one Crane Fly larvæ, elytra, thorax, legs and other fragments of coleoptera; no gravel.

12. Coll. October 17, 1893, female; stomach full; broken buds of witch hazel, seeds of *Cynoglossum*, bracts of *Lespedeza* seeds, a few fragments of coleoptera; no gravel.

13. Coll. Oct. 28, 1893; male; stomach partly full; broken seeds and buds, several fragments of large beetles; no gravel.

14. Coll. October 17, 1893, female; stomach almost empty; a few particles of seeds, pieces of brick and shale, and a small quantity of clear, sharp sand.

15. Coll. October 18, 1893, male; stomach full; seeds of *Cynoglossum*, buds of witch hazel, one piece *Julus canadensis*, one *Gyrinus*, thorax, wing, elytra and head of *Pterostichus*, numerous small pieces of clear quartz.

16. Coll. October 18, 1893, female; stomach partly full; crushed seeds and buds, very small fragments of coleoptera, a few small pieces of clear quartz.

17. Coll. 18, 1893, female; stomach tolerably full; crushed buds of witch hazel and seeds of *Cynoglossum*, elytra, thorax and legs and other fragments of beetles, small pieces of shale and a quantity of fine white gravel.

18. Coll. October 18, 1893, male; stomach almost empty; a bud indiscernible, broken seeds of *Cynoglossum* and five particles of beetles, a small quantity of clear quartz.

19. Coll. October 18, 1893, male; stomach fairly full; a mass of broken seeds and buds, fragments of coleoptera, a quantity of sharp, clear quartz and a piece of coal.

20. Coll. October 18, 1893, male; stomach partly full; a mass of flower buds of witch hazel and seeds of *Cynoglossum*, fragments of coleoptera and a small quantity of quartz.

21. Coll. Oct. 19, 1893, male; stomach nearly empty; a small mass of broken seeds and buds and fragments of beetles, a few particles of clear, sharp sand.

22. Coll. October 19, 1893, female; stomach partly full; a mass of crushed seeds and buds, numerous fragments of coleoptera, a quantity of quartz.

23. Coll. October 19, 1893; male; stomach nearly full; broken buds of witch hazel, crushed seeds of *Cynoglossum*, a few fragments of coleoptera, a quantity of clear quartz, and a few pieces of coarse black gravel.

24. Coll. October 19, 1893, male; stomach full; broken buds of witch hazel, seeds of *Cynoglossum officinale*, fragments of beetles and a few pieces of hard, dark clay and white sand.

25. Coll. 19, 1893, female; stomach full; a mass of crushed buds and seeds indiscernible, a small piece of seed of *Betula papyracea*, elytra, part of thorax and other fragments of a small beetle, probably a *Carab*, a quantity of coarse black gravel, and a few particles of clay.

26. Coll. October 19, 1893, female; stomach moderately full; a mass of seeds and buds, and one egg of an ant or Dipterous insect, a few pieces of wood and a small quantity of sharp sand.

The habitat is given as Eastern North America, west to the plains and north to Alaska, breeds north of United States. Mr. Thompson mentions the bird as breeding on Duck Mountain, in Western Manitoba, and Mr. Nelson says they breed abundantly in the alder thickets on the hillsides and ravines of Norton Sound, in Alaska, and Dr. Coues says the nest has never been taken in the United States, and Mr. McIlwraith says they have not been found breeding in Ontario, and mentions it as a rare migrant in the vicinity of Hamilton, and, according to Mr. Saunders, of London, and Mr. James Goldie, of Guelph, the birds are rare in these localities during fall migrations, and none mention them as occurring in the spring. Again, Anderson found it breeding in Labrador, and they are known to be summer residents of Newfoundland. So the only conclusion than can be drawn from the above facts is that the birds must have been passed over a great many times while in company with other sparrows, or a few specimens have taken a new road of migration, which has become very popular during the past six years, and although I have decided to collect no more specimens for some time to come, I shall always look for the birds with the same interest, and it is to be hoped that other collectors in different localities will search closer for them and see if the birds are not really more numerous than they are supposed to be.

Toronto.

GEORGE E. ATKINSON.

NOTES ON SOME MUSKOKA BIRDS.

BY A. KAY, PORT SYDNEY.

(April 30, 1890.) SEVERAL species seem to be moving northwards. About 1880, the Red-headed Woodpecker appeared here for the first time, and now (1890) it is quite numerous. The Meadow Lark has come within the last few years and is now getting quite plentiful. Within the last few years the Shore Lark (*O. alpestris praticola*) has come, and is now quite common. The Cow Bird (*Molothrus ater*) appeared at Gravenhurst last spring (1889) for the first time.

This spring I fed about fifty Redpoll Linnets and three Shore Larks in my barnyard every day, and the larks got so tame that they would run around my feet and chirp for food. They are now nesting in one of my fields, and I am watching their nesting habits with much interest.

Yesterday I saw the hen bird sitting on the ground, and the male was spreading his wings and tail to their greatest extent, and was dancing and singing for her most beautifully. I walked to within a few yards of them, but they did not mind me in the least, they know me so well. I have seen the male rise and fly straight upwards until he went clean out of my sight, singing joyously all the time, he would remain up about five minutes, and then come straight down again.

(April 25, 1890.) The Loons, Chipping Sparrows, Rough-legged Buzzards and Bitterns have arrived. All these remain and nest with us.

Several species of Wild Duck remain with us all winter. Two of these I have collected—the Red-breasted Shelldrake (*Merganser serrator*) and the Coween (*Clangula hyemalis*). A specimen of the last was collected April 26, and the stomach contained two whole perch.

Our rivers are very much broken up by falls and rapids, where the water does not freeze, not even in the coldest snaps of winter, and in these open waters the ducks sport and play, and find sufficient food, even when the temperature is down below zero. In the coldest days, I have seen twenty or more in a small pool, sporting and diving as if summer were come; but

as soon as the lakes open in the spring the ducks leave the rivers and take to the lakes.

(May 24, 1889.) I collected a pair of the Water Thrush (*Seiurus noveboracensis*), the only specimens I ever saw here. The Golden Crown (*Seiurus aurocapillus*) is not uncommon, and nests with us.

I collected a ♂ Yellow-bellied Woodpecker, which was of a bright amber color on the belly, and all that ought to be white on the back and wings of an amber color also. I also got his mate, and her crown was pure black without any red.

I found a nest of the Red-breasted Nuthatch (*Sitta canadensis*), with young about ready to fly. It was built in a rotten stub, about five feet from the ground, and around the hole there was a ring of pine or balsam gum plastered on the stub. I thought it was put there to catch ants, flies and other insects, so that the young ones might learn to provide for themselves, for I noticed them pushing out their heads and pecking at the gum. I have found three nests of the Chickadee (*Parus atricapillus*), and they were all lined with the wool of the wild rabbit.

(May 3, 1890.) To-day I saw a lot of Black and White Warblers (*Mniotilta varia*) for the first time this spring, and also some specimens of the Black-throated Green Warbler (*Dendroica virens*).

The Fox Sparrows came on April 17, and disappeared about the 29th. I saw a solitary one to-day. I also saw a flock of Wild Geese and many Gulls flying southward. Doubtless the very cold weather we are having has caused them to return.

(May 6, 1890.) I collected a fine ♂ *D. virens*; they are feeding on some kind of insect which they find on the foliage of the hemlock trees. They flutter over the boughs, making a snapping noise with their bills, and then dart in and catch an insect. They have the ability to run up and down the trunks of trees, like a Tree Creeper, but you do not very often see them doing it.

The Ruby-crowned Kinglets are now singing, they have a peculiar and very sweet song. I have seen these birds many times, but never heard them singing until a few days ago. They

seem to feed on insects which they collect on the spruce trees.

Last summer I found two Kingfisher's nests; in one there were seven eggs, and in the other six. In one nest I found the ♀ sitting, and in the other the ♂, thus showing that the ♂ assists in the duties of incubation.

(December 20, 1892.) I have lately seen three specimens of a rare bird, the Hudsonian Chickadee (*Parus hudsonicus*). It is a little larger than the common species (*Parus atricapillus*); the crown is dull black; the upper parts, wings and tail darkish slate color; all the under parts the color of the breast of the adult ♂ *Sitta canadensis*. I saw one near my place on November 4, 1892, and two more about eight miles north of my farm on November 8, 1892. And again, as I was driving past the same place on December 10, 1892, I saw what I took to be the same two birds on the same tree. I stopped my team and, getting out of the sleigh, I had a good look at them, for they were not at all wild, and allowed me to go within about three feet of them. They seem to frequent the second growth pine and spruce trees.

So far I have not been able to collect any specimens. It is snowing nearly every day here, and there is now very deep snow, and this is most likely to be a very severe winter, and probably the greater severity of the weather to the north has caused a southern migration.

Canada Jays (*Perisoreus canadensis*) have been very numerous this winter; they frequent dooryards and wherever they can pick up any kind of food. Pine Grosbeaks are also numerous and very tame and I have collected some very fine specimens.

(January 9, 1893.) I have not seen the Hudsonian Chickadees again. The snow is over two feet in depth, and very dry and loose, making it very difficult to go about in the woods, so I have not been able to do any collecting. Pine Grosbeaks and Canada Jays are still common, although they have been moving southwards for some time.

All last winter Pine Siskins (*Spinus pinus*) were very numerous about here, but about the middle of April (1892) they all disappeared except one pair, and they commenced to build

before the snow was quite off the ground. They came every day into my yard and gathered pigs' hair for nest building, but they found out a bundle of cow hair which I had placed in an old shed, and this they carried away in large beakfuls. I tried to line them and thus find their nest, but after crossing my fields they mounted over the tree tops and were lost to me.

While they were feeding their young ones they frequently paid me a visit, and I noticed how much more yellow they had about the wings and rump than in the winter season. And one day in May they came and brought with them four young birds, full-fledged and marked like the hen birds in fall plumage. They remained for many days about my door and on the trees around the yard, and although I would gladly have had them in my cabinet, I loved them too well to do them any violence, thinking that perhaps they would not leave me; but they went, and have not yet returned.

Last July I saw a ♀ Humming Bird gathering dandelion down, evidently to line her nest, and in August she brought four young birds into our garden every day, until the cold weather drove them south.

A pair of Towhees (*P. erythrophthalmus*) nested here last summer. I did not succeed in finding the nest, but they reared their brood of young ones.

(June 6, 1892.) While walking along the banks of the river, which runs through my farm, I observed a small bird dart out from a bunch of ferns which grew on the side of a small knoll, and, on stooping down and looking carefully about, I at last found the nest. The bird had scraped a hole out of the bank, by the roots of a bunch of old bracken (*Pteris aquilina*), which was partly broken down, and the new fronds growing up through the old formed as fine a protection as well could be.

On lifting up the fronds and looking in, I saw a pretty little nest, built of moss, pine needles and dry grass, and well lined with hair from a cow's tail. The nest contained four pretty little eggs, $\frac{3}{4}$ ", (.625) x 7-16, (.4375), the ground color white, finely mottled all over with small, reddish spots, more numerous towards the large end; incubation had just begun.

I thought from the glimpse of the bird I caught, when she

first left the nest, that it was a Nashville Warbler (*Helminthophila ruficapilla*), but trying my best I could not get a good look at her ; so I left the place and in a few hours returned, but with the same result ; the bird was so very shy and cunning, and there was so much cover about, that positive identification was impossible. And so I left her until it was quite dark, and, taking a small landing net in my hand, I crept cautiously and softly on my hands and knees until within a short distance of the nest, when I threw the net over it and caught, as I fully expected, a ♀ Nashville Warbler.

This is the first time that I have known this bird to stay and nest with us. They are not uncommon in the spring season, early in May, but usually they do not stay but a few days, disappearing towards their general nesting grounds to the north of us.

BREEDING NOTES OF BIRDS AT PRINCE ALBERT, N. W. T.

Scolecophagus cyanocephalus (Brewer's Blackbird).—This is by far the commonest of all the Grackles found here, and is usually seen along the roads in company with the Cowbird (*Molothrus ater*), with whom they much associate, being in fact almost identical in habits, feeding on the same kind of ground and showing a marked preference for the society of cattle or land on which stock has been feeding.

Though so common a summer resident, I only found one nest of this species, but that may be for want of more diligent searching. While collecting on the prairie one day in the latter part of June of 1892, I flushed a female off her nest on the ground, and as I was desirous of identifying the bird, I shot her as she was hovering overhead.

The nest was placed in a very open and exposed position, about twenty yards from a small pond and bluff of poplars. It was composed entirely of dead grass, and embedded quite to its rim in the ground and had no protection or covering of grass or plants of any kind.

It contained six eggs, measuring 1 1-16' long by $\frac{3}{4}$ ' in diameter, of a dull, dirty-white ground color, very thickly blotched and spotted with brownish-purple.

The female bird was very much excited by my intrusion of her domains, and flew continually around me while I was examining the nest. I saw nothing of the male.

Quiscalus quiscula æneus (Bronzed Grackle).—A very abundant species, it does not associate with other blackbirds but keeps aloof by itself. It breeds abundantly either in the rushes surrounding the small lakes or in thick willow swamps. I found one colony in possession of a long, dense, swampy patch of willows; this was in the latter part of May of 1893, and every nest contained some eggs. There was between thirty and forty nests, which were large bulky affairs, some rebuilt on old foundations two or three seasons, composed of dead grass and weeds, deeply hollowed and lined with finer grass and other soft materials. These were placed securely in thick bushes, from five to fifteen feet from the ground, some standing in water, others on dryer ground.

I visited all their nests and found eggs in all, some with the set not yet completed and some partly incubated; five or six eggs in a set. I was much struck by the great difference in size and color exhibited in the eggs. The prevailing ground-color was dark bluish-green, thickly spotted and blotched with brown and indistinct lilac markings, but they varied from this to a light blue with a few brown scratches or spots.

Though I collected quite a number, I did not make any measurements, as the mice destroyed them all; but there was much disparity in shape and size, some being small and nearly oval, others much larger and more pyriform in shape.

The birds were exceedingly vociferous and bold, the female allowing me to almost touch her before she left the nest and then moving only two or three yards away, and scolding incessantly; the males kept at a safer distance but were every bit as loud in their outcry.

Colymbus holbællii (Holbællii Grebe).—A common summer resident at Prince Albert, and breeds abundantly in the lakes and sloughs.

On June 18, 1892, I found a nest and four eggs which undoubtedly belong to this species. As I approached the lake the bird left the nest and swam about with her mate, at times coming so near that I had no difficulty in identifying them. The nest, a solid mass of vegetable matter, was placed a few yards from the shore, in about a foot of water; it was very slightly hollowed, being in fact little more than a heap raised a few inches above the water and resting on the bottom; the eggs were continually wet. Incubation had just commenced. The eggs were of a dull, dirty-brownish color, and measured 2' by 1 $\frac{3}{8}$ ' in diameter.

The birds were very quiet, making no outcry, but appeared very uneasy. I think they subsequently raised a brood in the same place, as I noticed them there all through the summer.

Colymbus auritus (Horned Grebe).—This is much commoner than the preceding species, being found in all marshes and ponds. I only examined one nest but saw many more; they are somewhat difficult to get at though the water is shallow, the bottom is very soft and muddy so that it is not pleasant work wading after them.

On the 24th of June, 1892, I found a pair of these birds in a small lake or rather pond, and, after collecting the female, I started to search for the nest, which I found, after making a complete circuit of the pond.

It was composed of the same material and placed in the same position as that of the Red-necked Grebe, but was much smaller in size; the four eggs it contained were nearly fresh; color, uniform dirty-white, without any spots or markings. They measure 1 $\frac{7}{8}$ ' by 1 $\frac{1}{8}$ ', being much sharper at the small end than those of the Red-neck, and also very much lighter in color.

These birds are very shy and hard to shoot, as they are under the water before the shot reaches them.

Each pair seem to have a pond to themselves, except in larger lakes, where there are often two pair to be seen.

Chordeiles virginianus (Nighthawk).—I have frequently been startled of a dark night going along a road, by having one of these birds dart up from almost under my feet and glide away silently. They have a habit of waiting until they are almost

trod upon, and then starting up, to alight again a few yards ahead. It is a most abundant species, breeding plentifully.

They seem to prefer a bush country, left free from underbrush after the fire has run through. Over this kind of ground the air would seem to be full of these birds of an evening, and their loud booming noise is heard on every hand.

Passing through these woods, I have often started the birds off their eggs, which are laid on the bare ground without any attempt of a nest, not even a hollow scraped for them to lay in; the eggs were always two in number and oval in form. The birds did not trouble themselves much as to what became of their property, making no noise and getting out of the way as quickly as possible.

Ægialitis vocifera (Killdeer).—This bird is very numerous from early spring until well on in the autumn, I have hunted carefully over the ground where the birds were plentiful but did not succeed in finding a nest; this must be owing to the female not remaining on her eggs, but flying to meet one a long way off. They are very noisy, and all the birds within hearing will gather and add their protest to what they are pleased to consider intrusion on their haunts.

A set of five eggs was brought to me near the end of June, they were quite fresh, and of a dull, creamy-white color, spotted heavily with brown; in shape much pyriform and appear large for the size of the bird. I did not examine the nest from which they were taken, so cannot give any description of situation or material.

These birds may almost be considered nocturnal in their habits, they are certainly noisiest in the dusk of the evening, and if the night is not altogether dark, they may be heard and seen at a pretty late hour. They seem to prefer the society of man, being most abundant about the town, and a very few scattered pairs being seen far out on the prairie.

EDWARD DEACON.

Toronto, Ont.

MEADOWLARK AND SONG SPARROWS
WINTERING.

ON January 1, 1892, a Meadowlark (*Sturnella magna*) was seen at Port Credit.

There are several other records of Meadowlarks wintering about this latitude, and probably they remain regularly.

Song Sparrows (*Melospiza fasciata*) have been observed occasionally during the winter. I shot one in Rosedale on January 16, 1892. My attention was attracted to it by its harsh "churp," when I noticed it hopping among some brushwood. The snow was seven or eight inches deep.

Mr. J. B. Williams also noticed one on the Island on the same date.

On February 28, 1892, I came across one near the Woodbine, quite close to the street.

The next winter record I have, is one seen on December 11, 1892, on the Humber River.

Toronto.

HUBERT H. BROWN.

BARTRAMIAN SANDPIPER AT TORONTO.

ON May 6, 1893, while walking over some fields east of the City, searching for Meadowlarks, I observed a bird running in a moist hollow, which at first I took to be a Wilson's Snipe, as it seemed to be unusually large for that bird. I shot it, and was very agreeably surprised to find my capture the Bartramian Sandpiper (*Bartramia longicauda*).

The bird was very tame and unsuspicious, feeding quite unconcernedly, while a large shooting match was in full swing not more than two hundred yards away. It was a female, and some of the ovaries were beginning to develop, three of them measuring a quarter of an inch in diameter.

Toronto.

JAMES R. THURSTON.

ENTOMOLOGY.

CANADIAN GALLS AND THEIR OCCUPANTS.

DIPLOSIS THURSTONI, N.S.

GALLS found on the upper half of the stems of *Helianthus divaricata*, appearing like a swelling of the stem; symmetrical, varying from ovate to spindle form, the long diameter of gall in the axis of the stem of the plant; color, the same as stem of plant. The measurements of four galls were, 8 x 6 mm., diameter of stem below gall 2; 15 x 7 mm., diameter of stem below gall 3; 13 x 7 mm., diameter of stem below gall 3; 23 x 7 mm., diameter of stem below gall, 3.

The walls of this gall are woody, hard and about 1 mm. in thickness. The interior is filled with a soft, pith-like substance, through which the *Diplosis* larvæ tunnel and on which they feed, and each gall contains from one to ten larvæ.

This is the rarest of the three *Helianthus* galls found here.

One specimen was collected by Mr. Jas. Thurston, April 25, 1892, and handed to me; from this came a ♀ *Torymus*, May 10, 1893.

I made a collection of four galls, September 11, 1893, and put them in a glass jar in the usual way. On April 18, I opened one of the largest of these galls, and found ten orange-colored *cecidomyid* larvæ.

May 20, 1894, two producers emerged, and on June 2, two producers and two ♀ *Torymus*.

The producer of this gall, for which I propose the name *D. thurstoni*, in honor of the discoverer, is of the usual *Diplosis* form and size; the head and thorax are dark grey; the abdomen, velvety black, with six white cross bands, interrupted on the dorsum; the legs are long, and have white annulations.

The first longitudinal vein of the wing is parallel with the costa, and joins it about its middle, near the angle of an

ample inward rectilinear bend, the union is marked by a small, quadrangular white spot; the second vein is nearly straight, and reaches the margin of the wing considerably beyond its tip, where there is a small inward curve; the third vein does not fork, and from its middle bends rather abruptly towards the hind margin, which it joins near its middle, where there is a small inward curve.

The *Torymus* is large when compared with the producer, and most likely devours two or more *Diplosis* larvæ before maturing.

DIPLOSIS HELIANTHI-BULLA, WALSH.

GALLS found on the upper third of the stems of *Helianthus decapetalus* and *Helianthus divaricata*, usually on the stem, often from leaf axils, occasionally on petiole and midvein of leaf, rarely on flower disc, protruding from between scales of involucre.

The galls are attached by an ample base, and are very irregular in form and position, usually somewhat compressed, varying from nearly spherical to flask and cone-shaped, and from equilateral triangular to spur-shaped, the sides of the triangle 9 mm., the spur 13 mm. long and 4 mm. diameter at base. The average of twenty galls was, base, 5.5 mm., 5 mm. thick, and extending 8 mm. from stem. These galls are of the color of the plant, usually hispid with rough pile, and from one to three on a plant.

I made a collection of these galls, east of the City limits, August 1, 1886, but the producers were out. A collection of over 100 galls was made in Ashbridge woods, east of the City, October 10, 1891, which gave many parasites but no producers.

A collection of eighty-seven galls was made from the same locality, August 6, 1893. From August 11, to August 24, these gave numerous specimens of a *Torymus*: from August 12, to August 16, producers emerged, and from August 17, to August 24, a species of *Pteromalus*.

From the fact of the parasites emerging simultaneously with the producers in the autumn, it is probable there is a later gall produced by this *Diplosis*.

The galls are usually found on plants growing in the shade of open woods.

I am indebted to Prof. Riley, of Washington, for a satisfactory identification of this gall.

MELÆ AMERICANUS.

IN Vol. 9, page 11, of the *Canadian Entomologist* are notes by me on *M. angusticollis*, and on page 75 there is a comprehensive article on the distribution of the genus, and some remarks on my notes, by Mr. Caulfield, of Montreal.

At the time these notes were published I was under the impression that the fall and spring forms were of the same species: the form *americanus* always found in the fall season, the form *angusticollis* always in the spring; and that the small difference between the two was caused by the pupa or semi-pupa being accidentally retarded in development, and thus passing the winter in the immature form. Perhaps the remarkable scarcity of the spring form, *angusticollis*, in Ontario suggested this idea. Anyway, my published notes were altogether on the fall form, which I presume is, without any doubt, *M. americanus* Leach.

After the appearance of Mr. Caulfield's article I began a series of experiments, with the view of producing, if possible, the spring form, *M. angusticollis*, from larvæ and pupæ of the fall form, by retarding development with cold artificially applied. I failed in pushing this attempt to a satisfactory conclusion, and, as it is not likely that I will ever again resume the inquest, I submit a few notes made at the time, which may yet be of some value, though too long delayed.

On September 29, 1878, I captured two pairs of *M. americanus* while feeding on *R. acris*. I put them in a large earthenware cage, sodded to a depth of several inches, and fed them with the leaves of several species of *Ranunculus*, of which they partook freely, but seemed to prefer *R. acris*. They nibbled at potato tops and raw potatoes, but refused to taste tomatoes, both leaves and fruit.

October 8. ♀ A, began to excavate a burrow; she pushed the end of her abdomen in and, while standing nearly erect, used her hind feet as scrapers, always scraping forwards and bringing the scrapings up in front and on both sides, and it was very interesting to see how well her ungainly-looking limbs were fitted for the purpose.

October 10. Burrow finished deep enough to receive her abdomen up to the thorax, and she began ovaposition; while doing so she remained quite still, except slight movements of the fore legs and antennæ.

October 11. ♀ A, came out of the burrow after having ovapositioned thirty hours. She very carefully covered the ova, and levelled up the hole nicely and began to feed on *R. acris*, looking somewhat flabby.

♀ B, has finished digging her first hole and is now ovapositioning.

October 12. ♀ B, came out of her burrow, having been ovapositioning twenty-six hours. In covering up her ova she used both fore and hind feet. She at once commenced feeding on *R. acris*.

October 14. ♀ A, in coitu with ♂ A; apart in the evening.

October 15. ♀ B, in coitu with ♂ A; parted in the afternoon.

October 17. ♀ A, excavating another burrow; began ovapositioning in afternoon.

October 18. ♀ A, came out of burrow after ovapositioning twelve hours; feebly covered up her ova; she is exceedingly emaciated. ♀ B, has made a second burrow, and is ovapositioning.

October 20. ♀ A, in coitu with ♂ B. ♀ B, came out of burrow, having ovapositioned seventeen hours. Both ♀s are feeding sparingly on *R. acris*.

October 26. ♀ A, ovapositioning above ground, not being able to burrow; she is very feeble.

October 27. ♀ A, lying dead above her ova. ♀ B, is ovapositioning in a very shallow burrow. She was not able to cover her ova, although she tried several minutes; she is scarcely able to crawl.

October 29. ♀ B, slowly crawling over leaves of *R. acris*, but unable to eat.

October 30. ♀ B, dead. ♂ B, dead. ♂ A, still alive; he appears to be a little interested in food, but is unable to eat.

October 31. ♂ A, dead. None of them appeared to suffer pain; they passed away very quietly.

In her first burrow ♀ A, ovapositioned 1,607 ova; in her second, 956; in the third, on the surface, 113; in all, 2,676.

In her first burrow ♀ B, ovapositioned 1,327 ova; in her second, 1,123; and in her third, 97; in all, 2,547.

Both ♀s were full average size, and fine, perfect specimens. When captured, each ♀ was accompanied by a ♂, as is usual in this species. I took up the two ♀s, put them in my collecting box, and sat down to watch the excited endeavors of the ♂s to find their mates. They crawled for several minutes as rapidly as they could about the spot where their mates had disappeared, but they soon became very dejected-looking animals, and, climbing a few inches up spear grass culms, they remained perfectly still, apparently waiting for something to turn up. So I picked them up, and on placing them in the box with their mates there was a glad reunion.

The ova were about '04' in length and '01' in diameter, semi-transparent and of a pale straw color. I returned them to their respective burrows, carefully covered them, and put the cage away for the winter, intending to have a hive of bees ready in the spring, in which to place the *Melæ* larvæ, so I could conveniently watch their habits and development until reaching adult life. I expected the larvæ to appear about the 1st of May, but on March 17, I found them crawling everywhere over the cage, and many had escaped and were gone. The usually published measurements and engravings were found to be correct, although some difference in the size of specimens was noted.

They usually remained perfectly still until some slight disturbance was made, such as the tap of a finger on the cage, when they immediately exhibited the most intense nervous excitement, rushing about with great rapidity, moving their limbs and antennæ with remarkable rapidity. I tried to feed them on honey, on beeswax and on bee bread, but they would not touch either of them; they did not exhibit the slightest

interest in any of these; many of them starved to death in the presence of all three. By these experiments I proved that the young *Melæ* larvæ do not feed on any of the products of the hive. They appeared so much earlier than I had expected that, unfortunately, I had not secured a hive of bees, and could not then get one in which to put the *Melæ* larvæ. Neither could I obtain any specimens of living hymenoptera. I secured a few living specimens of the housefly and of the large flesh flies, and put them in the cage from time to time; the *Melæs* at once seized on them with great avidity, but in an hour or two they dropped off.

M. americanus were very numerous in the autumn of 1880 and in 1881. Since then they have been rather rare in the County of York. A collector would not find more than perhaps three or four pairs in a season, but in the seasons above mentioned it was not unusual to find, in low, grassy fields, twenty or more specimens closely huddled in a moving mass.

In all my collecting in the County of York I have never yet taken *M. angusticollis* (the spring form). It has been reported several times, but investigation always proved it to having been mistaken for a much smaller species, *M. niger*, which has made its appearance here within the last fifteen years, and is always found in the spring season.

VESPA VULGARIS.

ON August 3, 1893, while walking through a clump of *Asclepias cornuti*, I observed a ♀ wasp pounce on a fine large *Ctenucha virginica*. She seized the moth with her fore feet and stung it in the thorax, when the struggling of the moth immediately ceased. She then began to cut off the wings and legs, and, after having trimmed off several of the legs and one of the fore wings, she seized the moth with her fore feet and attempted to fly away with it, but very soon fell among the grass, and while she was busily engaged in trimming off the remaining wings to lighten the load, I put them both in my cyanide bottle, and they are now in my collection.

WM. BRODIE.

Toronto.

BOTANY.

CALYPSO BOREALIS SALISB. P.L. 10011.

ON May 5th of the present year I accompanied Mr. Scott, of the Toronto Normal School, and Mr. Brown, a Normal student, on a botanical expedition up the Don Valley.

We entered the valley behind the old school house above Chester, and very soon came upon four specimens of the above plant. They were growing on the bank facing the north, and all four were within a radius of about two feet. The soil was of a light, loamy nature. They were in what seemed to be the partially dry bed of a streamlet, the ground even yet being quite damp.

I kept two specimens, which are about equal in size. I have taken the measurements of one only: Plant, $4\frac{1}{4}'$ high; root bulb, $\frac{1}{2}'$ in diameter; solitary leaf, $1\frac{3}{8}'$ by $1\frac{1}{8}'$; scape, $3\frac{1}{2}'$ long—at the base it is $\frac{1}{8}'$ in diameter, at the top $1\text{--}16'$; petals, $\frac{1}{2}'$ in length; color of flower, purplish.

W. J. FARMERY.

BOTRYCHIUM LUNARIA SWARTZ. P.L. 12724.

THREE specimens of this rare fern were found in the vicinity of Toronto on July 1, 1894. More precisely, the locality was just south of Bloor Street, near the eastern boundary of High Park. The plants were found growing on dry, sandy ground, in a somewhat elevated situation, with only a moderate amount of shade. When found they were in a condition of decadence, the fronds being somewhat wilted, but still showing their thick, fleshy character. The roots were fibrous. At the base of one stem a frond was found rolled in the bud.

The following measurements were taken, the specimens being denoted A, B and C. Thickness of stem at base, $\frac{1}{8}'$. Length of stem to top of fertile frond, A, $6\frac{1}{2}'$; B, $5\frac{1}{4}'$; C, $7\frac{1}{2}'$. Length of stem from base to sterile frond, A, $2'$; B, $1'$; C, $1\frac{1}{2}'$. Length of stalk of sterile frond, A, $\frac{3}{8}'$; B, $\frac{3}{8}'$; C, $\frac{1}{2}'$. Total length of sterile frond with stalk, A, $1\frac{1}{2}'$; B, $1\frac{5}{8}'$; C, $1\frac{1}{2}'$. Pinnæ of sterile fronds, 5-6.

In one specimen a small central fertile branch was present in the sterile frond.

————— A. J. HUNTER.

LIPARIS LÆSELII RICHARD. P.L. 10084.

Two specimens of this orchid were found, July 8, 1894, growing in an untilled, dry, sandy field, east of Ashbridge Woods and north of the G. T. R. track. This field is sparsely overgrown with *Rubus canadensis*, *Myrica asplinifolia*, *Diervilla trifida*, and such Solidagoes and Asters as grow on light, dry, sandy situations. The growth of grass is very meagre, scarcely forming a sod. The plants were growing so near to each other that the bulbs were in contact. The bulbs were nearly spherical, 10 mm. in diameter, scaly on the outside with effete epidermis, a mass of fine rootlets springing from the base, and the stem springing from the side.

From the bulb of the largest plant there was a lateral straight rhizome, 2 mm. in diameter and 120 mm. long, at the end of which there was a bud, possibly developing into a bulb; on the opposite side of the bulb there was a small, deeply-channelled leaf, 20 mm. long and 1 mm. wide.

At the base of the leaves, which were sessile from the bulb, there was an exterior, truncated, clasping bract, 7 mm. long, and an opposite and inner one, 12 mm. long. The first or outside leaf was 22 x 44 mm., and the second or inside one 30 x 50 mm.; length of plant from bulb to top of scape, 112 mm.; scape deeply grooved, bearing a small bract 8 mm. below the first flower, of which there were ten.

The other specimen was very similar, but less in size, being 100 mm. in total length; outside leaf, 20 x 50 mm.; inside leaf, 16 x 45 mm.; spike with eight flowers, three of which were infertile.

WILLIAM BRODIE.

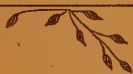
Liparis læselii.—(June 29, 1893.) Found two specimens near Balsam Avenue (I think), East Toronto, growing in marshy ground among grass. Height, 6¼' and 4¾' respectively.

MISS WILKES.

Vol. I.

No. 4.

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MAMMALOLOGY.

THE PANTHER IN CANADA.

DURING the years 1883-4, while on a Government survey in the Rocky Mountains, I several times saw the panther, though I never had a close acquaintance with him. In fact, I rather avoided an introduction, when I had no gun with me.

While producing the eighth base line (about lat. 51° , $30'$) into the mountains, one of the chainmen cut his foot, and remained in the supply camp in the last ridge of foot hills (about w. long. 117), and I remained overnight with him. We had made our beds, and were soon enjoying that sound sleep which comes to those who have clear consciences and sleep on balsam boughs, when suddenly we were awakened. Awakened! Yes, and lifted out of bed. I found myself near the door of the tent, grasping a rifle, my chum beside me, and we both were listening to the most hideous screams and shrieks, that might rival those of the lost souls in Hades. We watched the timber which surrounded the camp ground, and soon saw, though indistinctly, a large animal like a huge cat crossing the moonlit glades which ran into the woods. We felt sure that it was the panther, or commonly called in this locality "mountain lion."

The panther came nearer, and once we saw the wicked glitter of his eyes, about fifty feet from the tent. He was trotting around us, and trying to get at the pork, with which the tent was stored. When he stopped near the door of the tent, we were both seized with the idea that we had better let him know that there was someone at home, and simultaneously we fired. Crash went the woods, and for over half a mile we could hear him getting out of the country. We did not stop much longer in that locality, and never saw that individual lion again.

During the following season ('84), while up the Bow River at the mouth of Cascade River, where the National Park now is, we fell in with a party of railway navvies, who were just returning from an unsuccessful lion hunt. While at work on the track repairing, etc., they had seen a pair of mountain lions a short distance away to the north, and they sallied forth to kill them. The navvies were armed with axes, spades, picks, etc., and were led by a courageous Englishman, who was determined to have a skin to take "ome t'owd country." It was well they did not come to close quarters, for perhaps some would never have seen "ome" again.

The next experience we had with the panther was on a small lake on the Morley Indian Reserve, within a mile of the Kananaskis River. One evening we were awakened by the same shrieks and cries, but this time knew their source. Ad. and I crawled out, armed, and sat under a cart for nearly an hour waiting his approach, but did not get a chance at him. The ground was grown with clumps of willow, and our horses were pasturing near, so that we dare not chance anything. He came several times quite close (we afterwards found), but we could not tell but it might be a pony browsing, and did not dare to fire. We retired disgusted with our luck. In the morning his tracks were found in the snow which had fallen in the early night while we watched for him. He had been within twenty-five or thirty feet of the tent, and tramped all around the carts and through the willows. I did not measure his tracks, but remember that my hand, fingers closed at the second joints, would not cover one of them.

One of our axemen had an adventure with one, a few miles from this spot. We had produced our township line south over the hills which, from where our tent was, rose 1,800 feet in one steep incline. We worked our way about seven miles, and returned in the evening by going down to the pack trail along the Kananaskis river, or walking back along the line. The axeman took the trail *once*, but never again. He saw the "lion in the way," and knew that he was not chained. He sidled around about a quarter of a mile, and when he had got a good clump of trees between himself and the cat, he made a bee line for home, and, notwithstanding he had been walking out of the trail, made the best of time. If he were expected for supper by that lion, he was "awaited in vain."

I have tried since those years to locate the northern limit of the panther. Mr. Fred Brick, a gentleman who for some years has been in the Indian trade, says that in his locality he has never seen one, nor received a skin from the Indians. He has traded up the Peace River from his station, at the junction of the Peace and Smoky Rivers, up to the summit of the mountains, and his Indian hunters range quite a distance south of that. So the northern point must be between lat. 52 and 56. Possibly the panther may be found on the head waters of the Athabasca, in the neighborhood of the Yellow Head Pass, near Mounts Brown and Hooker. Hunters and traders on the British Columbia side of the mountains, report it as fairly common.

Toronto.

J. W. MILNE.

ZAPUS HUDSONIUS.

THE Jumping Mouse is fairly common here. It lives principally in the bush, but it is often found in the harvest fields. My cat once brought in four young and one old one in one day, and I thought she had the whole family. It is not likely they breed more than once in the year in this locality, but I will try and determine this point.

Port Sidney, Muskoka.

A. KAY.

ORNITHOLOGY.

ARDETTA NEOXENA AT TORONTO.

ON JUNE 10TH, I saw Cory's Least Bittern rise from the marsh, quite near to me, and flew round across an open piece of water, alighting in the marsh at the other side of the channel. I am sure of the identity, for it was not at any time during its flight, more than fifty yards from me, and rose from the marsh about twenty feet from the boat.

On August 16th, I received a specimen of this bird, shot by Mr. Hume, a few hundred yards from the spot where the above mentioned specimen was observed. The following is a description of this bird; the colors are named from Ridgway's "Nomenclature of Colors for Naturalists:" Mature male—Forehead and crown, the feathers lengthened to a crest covering the occiput, lustrous black; lores naked, of a greenish cast soon after death; upper mandible blackish on culmen, shading to greenish black on sides; lower mandible, ochraceous yellow, with a greenish cast, darker at base and tip; irides, yellow; the ruff, composed of the feathers of chin, throat and jugulum, rich burnt umber, fading into cinnamon on the chin and upper throat, and on the outer edges to a blackish brown, finally becoming black, caused by the outer feathers being black shafted, and tipped and edged with black of a duller cast than the crown and back; back, rump, upper tail coverts and tail of the same rich, lustrous black as the crown; the lesser coverts on the carpal joint, blackish; the others, with the middle and greater coverts, of a dark brown, darker than the ruff; alula, brownish, with a white mark at base; primaries and secondaries, slate color, much paler on the inner webs; tertials, black, like the back; the frontal feathers of the breast, blackish, forming a narrow elliptic mark at the end of ruff; breast, deep brown, shading to dull black on sides; flanks, dull black;

tibia, black on outer side, with a few brown feathers; on the inner side, white, interspersed with a few brown feathers; a white patch on abdomen, banded posteriorly by a blackish mark; anal region, white; under tail coverts, dull black; feet and legs, olive green, darker anteriorly; the under side of feet orange. Length, 14 in.; wing, $4\frac{3}{4}$; tail, 2; tarsus, $2\frac{3}{4}$; bill, $1\frac{3}{4}$; testes, about $5-16 \times \frac{1}{8}$ diam. Stomach contained twenty-five young perch, the largest 1 in. long, the smallest $\frac{5}{8}$ in. This specimen is now in my possession.

Toronto.

JAMES R. THURSTON.

A male Cory's Bittern (*Ardetta neoxena*) was shot on August 17, 1894, on Ashbridge's Bay, Toronto, by Mr. Harry Day, and is now in my possession.

In this specimen the colours of the eye, beak, legs, and toes, did not differ from the published descriptions, and from two specimens I have examined, when fresh. The bird is a small one, and is undoubtedly a bird of the year. On a close examination, down is evident on the top of the head, like the young of other bittern. The feathers of the back of the neck are spare and downy in appearance. The mantle is not the decided glossy black of an adult specimen before me (the one recorded by Mr. Hubert Brown in the *Auk*, Vol. X., 1893, p. 363), but is dull, and the black relieved in several places by traces of umber brown. The entire under parts, including the thighs, are brownish black, the feathers still retaining, in part, the appearance of down. Except in the general dullness of the plumage and the differences already noted, this bird does not differ, in distribution of colour, from the adult.

From the state of plumage and the date of capture I believe this bird was bred near Toronto.

Measurements (fresh): Total length, from tip of beak to end of claw of middle toe, 11.75 in.; wing, 4.50; tail, 1.50; tarsus, 1.37.

Toronto.

JAMES H. FLEMING.

On August 24, 1894, while Mr. P. Jacobs and a friend were out boating on Ashbridge's Bay, Toronto, they observed something in a small clump of reeds, which appeared to them like a large bat. On approaching it, they found it to be a Cory's Least Bittern (*Ardetta neoxena*).

Mr. Jacobs endeavoured to capture it alive, and succeeded in approaching within three feet of it, but his companion killed it with a paddle. It proved to be a young male, about two-thirds grown, with down on its feathers; coloration similar to that taken May 26, 1894. (See *antea*, pp. 52-53.) Both these birds are in my collection.

The stomach contained about fifteen small bass, about one-half inch long, and the larva of a large dragon fly.

Toronto.

J. H. AMES.

NOTES ON CORY'S BITTERN (*ARDETTA NEOXENA*) AND A COMPARISON OF THE SEVEN TORONTO SPECIMENS.

THAT the history of this remarkable bird may be more readily understood, I have taken the liberty of presenting a summary of what has been published regarding it, and of describing the difference between the seven specimens captured at Toronto.

A most peculiar circumstance in the history of this bird, is that it has only been recorded from two isolated and widely separated localities, viz.: Southern Florida and Toronto, Ontario; and it is interesting to note that not until 1890 was it observed in Toronto, some four years after it was discovered in Florida.

In 1893 another was captured here, and this year (1894) five have been secured.

Quite a number have been observed, but only five taken, in Florida since the type was obtained. This fact would lead to

the supposition, that the species is increasing in numbers, or is it because greater pains have been taken to search for them?

The marshy location at Toronto, to which the birds resort, and where all of the seven were taken, is only about half a mile square, protected from the seas of Lake Ontario by a narrow sand-bar a few yards in width, and is situated immediately adjacent to the city of Toronto.

A great deal of shooting is practised there at all seasons, so that the bird, though evidently of retired habits, could scarcely have chosen a more frequented piece of marsh.

It seems natural to suppose that there exists in this marsh, some peculiar attraction, since it is the only place where they have been seen except in Florida. It may, therefore, be interesting to know something regarding the chief characteristics of its flora, and through the kind assistance of Dr. Brodie, I am enabled to give the following notes, which will give some idea of its nature. It is chiefly grown up with *Typha latifolia*, *Scirpus fluviatilis* and *Phragmites communis*, which abound in dense masses.

Scirpus fluviatilis, while mixing with *Typha* to a great extent, often crowds it out, leaving patches here and there entirely free from it.

Phragmites communis grows in the more open water, as well as among the crowded *Typha*, and *Scirpus validus* abounds in the more shallow open spaces.

In still water, several species of *Potamogeton* abound, and *Lemna trisulca* floats on the surface, covering most of it.

There are a number of large patches of *Nymphaea odorata*, and *Nuphar advena* is quite common.

At present (November) the marsh is almost entirely dried up. This year *Porzana carolina* and *Ardetta exilis* were very abundant.

In Florida the habitat of Cory's Bittern as now known extends over a swampy area, about forty by fifty miles in extent.*

* W. E. D. Scott, *Auk* IX., 1892, p. 214.

Of the seven Toronto birds, six have the sex determined, four being males and two females.

That they bred here is evident from the fact that they were captured this year, on the following dates: May 26, July 16, August 16, 17 and 24, and those taken on the two latter dates are evidently young birds.

A peculiar habit of these birds, as noted by Mr. Pickering and Mr. Jacobs, is their stupidity or tameness; several allowed so near an approach, that they were killed with paddles.

Mr. J. F. Menge has also noted this habit in Florida, as on one occasion, when he had found their nest, he held one of the old birds in his hand; it showed no signs of flight, and its mate was within two or three feet of him; when he "let the old bird go she hopped back on her nest as though she were accustomed to being handled."*

This habit has not been observed in the common bird *Ardetta exilis*.

The stomach dissections of three specimens show that the food consists of small bass and perch, from one half to one inch in length; and in one stomach, there was found the larva of a large dragon fly.

There is much to be learned regarding the status and life history of this strange bird, and it would be interesting to hear what the leading authorities have to say on the matter, since so many additional specimens have been secured at Toronto.

As the seven Toronto specimens represent more than half the number known to have been taken, a comparison of them might be of interest to the readers of the REVIEW, especially as they are a representative group, consisting of two adult males, two females, two young males, and an adult, of which the sex is undetermined. I have succeeded in bringing together, for the purpose of comparison, all of these with the exception of one in the Canadian Institute.

I must here thank Messrs. J. H. Ames, J. H. Fleming, J. R. Thurston and Charles Pickering, for their kindness in loaning me the specimens they possess.

* *Auk* VIII., 1891, p. 309.

In the following descriptions I have used Mr. Ridgeway's "Nomenclature of Colors," in defining colors, and will refer to the birds by their numbers as follows:

No.	SEX.	LOCALITY.	DATE.	COLLECTION OF	RECORDED.
1	.....	Toronto, Ont.	May 18, 1890	Canadian Institute.	Wm. Cross, Proc. Orn., sub-sec. Can. Inst., 1890-91, p. 41.
2	♀ ad.	"	May 20, 1893	J. H. Fleming.	H. H. Brown, Auk X. Oct., 1893, p. 363.
3	♂ ad.	"	May 26, 1894	J. H. Ames.	Biol. Rev., Vol. I., p. 52
4	♂ ad.	"	July 16, 1894	Chas. Pickering	" p. 54
5	♂ ad.	"	Aug. 16, 1894	J. R. Thurston.	" p. 84
6	♂ juv.	"	Aug. 17, 1894	J. H. Fleming.	" p. 85
7	♂ juv.	"	Aug. 24, 1894	J. H. Ames.	" p. 86

The measurements (taken from dried skins) show that the two adult males are somewhat larger than the females, the greatest difference being in the wing, tarsus, and culmen. No. 5 is considerably larger than the others, in most of the measurements.

Nos. 3 and 5 (adult males) have the back black, glossed with green, as in *exilis*, without any traces of brown; the black feathers covering the back of the neck are much more conspicuous than in the females, and are glossed with green, the same as the back. No. 5 is much richer in color on the under parts, and has a considerable amount of white (which is wanting in No. 3) on the abdomen, thighs and anal region.

Nos. 2 and 4 (adult females) are similar in coloration to the males, but the occipital crest is not so evident; and the color of the back shows traces of brown, No. 2 being a decided brownish tinge, while No. 4 is glossy green, with traces of brown. The tails of both are dark glossy green. The rufous of the sides of the head, in No. 4, extends anteriorly over the eye, to the forehead, forming a narrow frontal margin of rufous; in No. 2 it just passes the eye, not reaching the forehead; the white feathers on the thigh are absent in No. 4, otherwise they are alike.

Nos. 6 and 7 are both young males of the year. No. 7 is of special interest, as it bears undoubted signs of youth. General coloration same as adults, but having down very conspicuous over the whole body. The head, back, under parts and thighs especially, and some of the feathers of the back show this feature; the dark glossy green of pileum is somewhat obscured with it. This down is about half an inch in length, and is attached to the tip of the shafts of the feathers, from one to four barbs being attached to one tip; it is of a light brown color, darkest on the crown.

On the crissum, the feathers are of a very loose and downy nature and of a dusky color, excepting some white in the anal region.

The measurements (from dry skin) are as follows:—wing, 4.20; tail, 1.45 (?); middle toe, 1.45; hind toe, .70; gonys, .30; nasal fossa, 1.10; depth of bill at middle, .26.

It is about ten per cent. less than the adult male, No. 5, in all measurements excepting those of the bill; in No. 5 the culmen and gonys are each .35 longer than in No. 7, a great variation.

No. 6 is similar to No. 7, but has only a few feathers of the head with down. The back is without the green gloss, excepting on the tail and edges of some of the secondaries, and is suffused with chestnut, thus resembling the adult females.

I have examined the specimen (No. 1), now in the Canadian Institute, and believe it to be an adult male, as it is almost identical in coloration to the adult males, Nos. 2 and 5; it lacks any white on the lower parts, and in this respect resembles No. 3.

Ardetta neoxena differs considerably from *exilis* in the coloration of the feet; the former have the tarsus and upper surface of the toes a dark "olive green," and the soles "orange," while the latter have a light greenish-yellow tarsus and yellow soles.

The males of *neoxena* and *exilis* correspond in colour only on the pileum and back, while the females of *neoxena* are much darker on these parts than *exilis*.

The individual variation of the seven specimens of *neoxena* is so small as to merit notice; the rufous and chestnut of the neck and wing varies only slightly, and some of the birds have white feathers on the thighs and crissum, while others have not, but this may be attributed to albinism.

On the whole, when compared with *exilis*, *Ardetta neoxena* is a very distinct species, and not known to interbreed.

Through the kindness of Dr. Verner a couple of good photographs were taken of the group, with the exception of No. 1, which was not obtainable.

Toronto.

HUBERT H. BROWN.

PODILYMBUS PODICEPS.

WHEN collecting on the Omemee River, County Victoria, Ontario, June 1st, I found large numbers of Pied-billed Grebes breeding, and many of the nests were destroyed by the freshets caused by the recent heavy rains. One nest however, I managed to secure; the contents were three young chicks in the down, all of which took to the water at sight. After many attempts to escape by diving, they were captured by lifting them into the canoe on the paddle in an exhausted condition.

Description: Age, possibly one day old; forehead, a white patch extending to base of bill and diverging to two white lines running over each eye, these bounded on each side by black, that next the lores being a very narrow line; the crown black, with a short, broad line over each eye white; a triangular-shaped patch of bright rufous on centre of crown; the black of the crown bounded posteriorly by two rufous marks, narrowing in the centre and nearly meeting; the cervix black, relieved in the middle by two white lines converging on the occiput to a sagittate mark of rufous; lores, naked, pinkish white, ending in a white stripe which runs to the occiput, meeting the two rufous lines, thence down the sides of neck; throat, white; sides of neck, white intersected by three black stripes, making about equal proportions of black and white; upper breast, greyish black, mottled with indistinct white marks; breast and abdo-

men, pure glossy white ; back, black, fading to grey-black on sides, and intersected longitudinally by six white lines brightest in middle of back ; wings, blackish, showing indistinct white marks ; bill, black on culmen and anterior half, with a right-angular-shaped white mark on the bend of culmen, embracing a decided knob, the white also appearing on the tip of lower mandible, which is pinkish, with a dusky mark on middle ; feet, greyish blue.

B. L. NUSSEY.

NESTING OF CANADIAN WARBLERS.

BLACK AND WHITE WARBLER (*Mniotilta varia*).

THIS species is one of our wild woodland warblers. They are never seen in the open fields or gardens, or even in high, hardwood-timbered tracts, except where the underwood is dense and the ground moist. In general its haunts and home for the season is the bordering of swampy woods, or similar places as those frequented by the Water Thrush and the Canadian Warbler, and here it doubtless finds the particular insect food on which it subsists and feeds its young. While in quest of food, especially in the early spring time, it may often be observed running up the trunks of trees, and out along the branches, somewhat after the manner of the Nuthatches, from which circumstance it has, until recently, been known among ornithologists as the Black and White Creeper.

On the opening of our spring, usually the latter days of April or beginning of May, its arrival is announced by its oft-repeated song, which resembles the words, "sweeten, sweeten, sweeten," repeated three or four times in rapid succession.

It is among the first of our warblers to arrive in spring.

It builds its nest about the last week of May or in June, which is usually placed on the ground, or in a bank of earth turned up by the roots of a fallen tree, but always in a cavity

or under some concealing object, either stick, bark or clump of dry leaves.

On the 31st of May, 1893, I collected a nest and set of eggs of this species. The site of this nest was near the top of the turned-up root of a fallen tree, in a dense thicket of bush and underwood, and three feet above the hollow out of which the root had been torn. Over the site a part of the root projected, sheltering it from the sunshine except at noonday. The place was on the edge of a swampy burn and a highland dell, which I find to be a favorite nesting place of several other species. The bird had been on the nest, and flushed out as I, a few feet off, crashed through the tangled bush, and saw at once that it contained three of her own eggs and one of a Cow-bird's, and these I afterwards found had been about three days incubated. The nest was composed of dry leaves, some strips of bark, a little moss, rootlets and hair. The eggs are of a whitish hue, thickly dotted toward the larger end with spotting of a flesh color. A person not well acquainted with the nesting peculiarities of this species might easily have mistaken it for a nest of the Canadian Warbler. Though placed in a similar position, and composed of similar materials, it was more bulky in size, and the eggs, though about the same size, had not so clear a ground color, and were a little more globular in form. The return of the bird, however, soon settled the question of identity.

THE MOURNING WARBLER (*Geothlypis philadelphia*).

A nest with four beautiful eggs that I collected this season (1894) is before me, and as they may be regarded as typical, I will give some account of them.

On the 28th of May, as I was doing some work on the margin of a swampy burn and the highland wood, I discovered in a clump of yellow-topped weeds a newly-made nest, of whose identity I was at first uncertain, as it seemed to be rather large for any of the warblers that nest in such situations. On each of the two following days an egg was deposited, which resembled those of the Maryland Yellow Throat. On the 3rd

of June the nest contained four eggs, and as a day had passed without one being deposited, I concluded that the set was complete, so I took them home, and they are now in my cabinet.

On this occasion the bird was seated in the nest, which she did not leave until I almost touched her with my hand, and then, instead of flying out, she ran mouse-like into a neighboring brush pile, which I shook before she flushed to a stand a few yards off, when she gave tongue, and I had no doubt of her identity as a female Mourning Warbler.

The ground color of these eggs is white, and the spotting more of a brownish hue than either reddish or black. One is marked near the smaller end.

The nest itself was rather bulky for the size of the bird. Underneath, on the earth, was a platform of dry weed stalks; then dry leaves, which had evidently been placed together in a moist condition, formed the bottom and sides of the nest; but the upper rim and inside is formed of fibres of vines and grasses, and there is some horse or cattle-tail hair intermingled with the lining.

This species is chiefly found in second-growth timbered places, and nests in various situations, such as clumps of weeds and grasses, and the cavities of turned-up roots and banks, and the nest is in harmony with the situation. Five or six eggs are usually deposited.

Listowel, Ont.

W. L. KELLs.

A SUMMER'S COLLECTING AND OBSERVATIONS AT PORT ARTHUR, ONTARIO.

PORT ARTHUR is situated on the northern shore of Lake Superior, about 900 miles north-west of Toronto, and is about half way between Manitoba and Muskoka.

The character of the country surrounding Port Arthur is of

a rocky nature, grown up with scrub tamarac, spruce and hemlock, and in the lower localities are numerous large swamps.

There is no large timber in this region.

One can hardly be expected to give a complete account of the birds of any region in one short season's observations, nor is it my intention to try to do so. I merely give a list of the species observed during the summer of 1892.

Colymbus holbællii (Holbøells Grebe).—One young bird seen in August, which might indicate its breeding in the vicinity.

Colymbus auritus (Horned Grebe).—Two young specimens collected; several others observed. Breeds.

Urinator imber (Loon).—Said to be extremely common in the spring, breeding in the smaller lakes. Very few seen in the fall. Two were secured by some fishermen near Thunder near Thunder Cape, one in young and one adult plumage.

Urinator articus (Black-throated Loon).—One specimen of this species was secured from W. H. Davis' dock about the middle of October, but I could not find out whether others had been observed or taken at any time, most people not knowing the difference between it and the Northern Diver.

The specimen mentioned was in young plumage.

Urinator lumme (Red-throated Loon).—In making enquiries about the Black-throated Diver, I was informed by several parties that the Red-throated Loon was often taken in the spring, but seldom in the fall. I did not hear of any being taken this fall.

Gavia alba.—The gulls are exceedingly plentiful all about Port Arthur, and no doubt the Ivory Gull will hold its own among them. While working in town, two beautiful specimens were brought to me to be mounted. They were secured in the bay, near the breakwater. The fishermen tell me that they are sometimes numerous about the nets, but are always shy.

Rissa tridactyla.—One specimen of the Kittawake was taken early in November.

Larus glaucus, laurus marinus.—The Glaucous and Great Black-backed Gulls were sometimes observed among the large numbers of gulls which congregate about the docks, and one

fine specimen of the former was secured. The latter were more shy.

Larus argentatus smithsonianus.—The Herring Gull was exceedingly abundant at all times, and large numbers of them breed at Thunder Cape, Pie Island, Victoria Island, and all along the shore among the rocks. A large variety may be obtained, adult birds ranging from twenty-two to twenty-six inches in length, the young plumaged birds seldom being less than twenty-four inches.

Larus delewarensis.—The Ring-billed Gull is also abundant at all seasons, and breeds in company with the Herring Gull. Some beautiful specimens were secured.

Larus philadelphia (Bonapartes Gull).—This little gull is tolerably common in August for about two weeks, but none are observed after September 1st.

Sterninæ.—No Terns were observed at all.

Pelecanus erythrorhynchos.—During the last week in October, a carpenter boarding at the hotel told me of a large bird, which he called an eagle, which had alighted in a field near where he was working. He described the bird as being all white, so I could not call it an eagle. He was, however, too far away from it to see much of the shape, but a man came on the scene with a gun, and, after firing at the bird twice, drove it away. This man was afterwards in the shop, and told me about the occurrence, and described the bird to me, and I at once knew it to be a Pelican. He says he was within forty yards of the bird when he shot, but the charge was too small. The bird was evidently tired, as it did not fly until he fired the second time. No report could be heard of it afterwards.

Merganser americanus (American Merganser).—I secured one specimen of this species from the dock in October. They are said to be abundant all winter.

Lophodytes cucullatus.—The Hooded Mergansers are also common all winter. Some beautiful specimens were brought in about the middle of November.

Anas boschas, *Anas obscura*, *Anas americana*.—These three species are tolerably common in the early fall, but in very poor plumage.

Anas carolinensis.—The Green-winged Teal are the most numerous ducks in the early fall, and are in fairly good condition. They are very tame, allowing one to approach within sixteen or twenty yards, and in consequence a large number are killed.

Anas discors.—The Blue-winged Teal are far more scarce, only one specimen being obtained.

Spatula clypeata.—The Shoveller is often taken in the fall, but in very poor condition.

Aythya americana.—In southern Ontario the Red Head is found in November and on into the winter, but at Port Arthur it was only seen during the second week of September, and very few persons ever saw them earlier. I secured four specimens in very poor plumage.

Aythya marila nearctica, *Aythya affinis*.—The scaup ducks are common during the second and third week in September, but are in poor condition.

Glaucionetta clangula americana.—The Whistler is sometimes seen in November, and is fairly common all winter.

Charitonetta albeola.—The Buffle-head is seldom seen in the fall, but is common in the spring.

Clangula hyemalis.—The Cowheen is sometimes found in the winter, but not very plentifully.

Histrionieus histrionicus.—I secured a female Harlequin Duck out of a flock of Baldpate on September 19th, the only specimen I met with.

Oidemia deglandi, *Oidemia perspicillata*.—The Scoters are said to be abundant all winter.

Branta canadensis.—While going up the P. A. D. & W. Railway, we passed a flock of about twenty Canada Geese, within about thirty yards of the track, on Iron Range Lake, about sixty-five miles south-west of Port Arthur. They did not seem in any way alarmed at the train.

Botaurus lentiginosus.—The American Bittern is fairly common from May till September.

Ardea herodias.—Fairly common around the small lakes.

Grus mexicana.—On September 27th a Sand Hill Crane was

brought to me, which was secured out of a flock of five on Silver Island, a few miles from Thunder Cape. The first specimen ever seen in that locality.

Phalaropus lobatus.—On August 24th I secured a single specimen of the Northern Phalarope out of a flock of small sandpipers. The only one seen.

Gallinago delicata.—I received several pairs of the Wilson's Snipe and one pair of Dowitchers (*Mocrohamphus griseus*) in October.

Among the sandpipers and plover found were *Tringa maculata* (Pectoral Sandpiper); (Least Sandpiper) *Tringa minutilla*; *Tringa alpina pacifica* (Red-backed); *Ereunetes pusillus* (Semipalmated); *Calidris arenaria* (Sanderling); *Totanus melanoleucus* and *Totanus flavipes* (Greater and Lesser Yellow Legs); *Totanus solitarius* (Solitary Sandpiper); *Actitis macularia* (Spotted Sandpiper); *Charadrius squatarola* (Black-bellied); *Charadrius dominicus* (Golden Plover); *Ægialitis vocifera* (Killdeer). But, like the ducks, they were in such poor plumage as to make them of little value.

Among the grouse were *Dendragapus canadensis* (Spruce Partridge); *Bonasa umbellus* (Ruffed Grouse); and *Pediocætes phsaianellus*, common in some places, some good specimens of each being taken.

Circus hudsonius.—The Marsh Hawk was about the most abundant of the hawks. Not being satisfied with marsh, several specimens were secured among the hills and rocks near Gunflint Lake.

Accipiter velox.—Sharp-shinned Hawks were also tolerably common.

Accipiter atricapillus.—The Goshawk is sometimes found in the fall. One adult female brought to me was the finest bird I had ever seen. She was twenty-six inches long, and had a spread of four feet ten inches.

Aquila chrysaetos.—Two splendid specimens of the Golden Eagle were secured in the fall of 1891, one by W. H. Davis and one by a Mr. Garland. Both are very poorly mounted, and spoiled specimens now. None were seen this year.

Falco columbarius.—The Pigeon Hawk is abundant in some places. Several good-plumaged specimens were secured.

Falco sparverius.—The Sparrow Hawk is also common.

Striges.—There are only three species of owls common there, the *Bubo virginianus*, *Nyctea nyctea* and *Surnia ulula caparoch*. The Hawk Owl is common every winter, first appearing about the last week in November. The Snowy Owl is common in October and November some years, and other seasons is entirely absent. The Great Horned is common all the time, breeding in suitable places, and showing a greater variation than any other bird, from the extreme dark eastern variety to a variety almost as white as the Snowy, the lighter variety being much smaller than the dark.

Ceryle alcyon.—Abundant ; breeding.

Dryobates villosus, *Dryobates pubescens*.—Abundant ; breeding.

Picoides arcticus.—Common ; breeding.

Ceophlæus pileatus.—Numerous in burnt districts.

Colaptes auratus.—Abundant ; breeding.

Chordeiles virginianus.—Abundant. Breeding commonly around the railway camps.

Chatura pelagica.—Common, breeding in store and out-houses.

Sayornis phæbe.—Common ; breeding.

Contopus borealis.—Common on the P.A.D. & W. Railway ; breeding.

Contopus virens.—I came across a nest of young Wood Pewees in July, on Gunflint Lake, the only record of this species.

Otocoris alpestris, *Otocoris alpestris praticola*.—In October large flocks of larks were seen, and a number of both species secured.

Cyanocitta cristata.—Common in the more heavily wooded sections ; breeding.

Perisoreus canadensis.—Canada Jays were common in all localities.

Corvus corax sinuatus.—Common about Port Arthur, more rare farther back ; breeds.

Corvus americana.—Common ; breeding.

Agelaius phæniceus.—Rare ; only one female observed.

Scolecophagus carolinus. The Rusty Grackle takes the place of the Red-winged Blackbird, breeding abundantly along the banks of rivers, and also in the marshes.

Quiscalus quiscula æneus.—Common, breeding around the more cultivated parts, and in the neighborhood of the small

Pinicola enucleator (Pine Grosbeak).—Common in November and December.

Spinus tristis.—Common ; breeding.

Plectrophenax nivalis.—Exceedingly abundant in October and November. Flocks of thousands swarm on the docks.

Calcarius lapponicus.—Common. Large flocks arrived early in October, but became scarce as the Snow Birds increased.

Zonotrichia albicollis.—Abundant ; breeding ; several young birds captured around the camps.

Spizella monticola.—Abundant in October.

Junco hyemalis.—Common ; breeding.

Melospiza fasciata.—Breeds rarely.

Melospiza georgiana.—Breeds commonly.

Spiza americana.—A female Black-throated Bunting was collected in October among a flock of Lapland Longspurs.

Chelidon erythrogaster.—Abundant ; breeding.

Clivicola riparia (Bank Swallow).—Abundant ; breeding.

Vireo olivaceus.—Abundant summer resident.

Helminthophila celata.—A beautiful specimen of the Orange-crowned Warbler was brought to me in September to be mounted. It had flown into a house, and was captured for a canary. The owner never came after it, so I have it in possession at present.

Dendroica coronata.—The Myrtle was about the only warbler observed, and was abundant in September and October. Also breeds, as several young specimens were taken in August.

Anthus pensylvanicus.—Pipits were abundant in September and October, large flocks accompanying the shore larks.

Turdus ustulatus swainsonii.—The Olive-backed Thrush was the only thrush observed, and it was common, breeding about the railway camps.

Merula migratoria.—Common, breeding about Port Arthur.

Sialia sialis.—Observed breeding near the railway camps about eighty miles south-west of Port Arthur. None were seen around the town.

The general plumage of the birds was very poor, especially the sandpipers and ducks, the gulls being in the most perfect plumage of any of the birds secured or observed. The impression is that the birds do not attain the full plumage until they reach a more southern resting place. All the migration seemed to be directly south with strong-flying birds like ducks and plover, while the smaller species left us by the south-west, following the lake shore as far as Duluth, where they could then strike south across Minnesota. The first sign of movement began about August 1st, and was noticed among the sandpipers, followed by the ducks, the smaller birds not moving much until after September 10th.

G. E. ATKINSON.

GENERAL NOTES.

Coccyzus americanus nesting.—On July 9, while walking in the scrub bush on Wells' Hill, I found a nest of the Yellow-billed Cuckoo. I satisfactorily identified the bird but, as it was Sunday, I had no means of collecting it. On the following morning I returned and secured the bird, which proved to be a ♂. I waited and visited the spot several times, but saw no trace of the ♀; she had evidently been killed.

The nest was a rough, loose structure made of twigs, placed loosely on a crotch formed by a grape vine crossing a hawthorn limb. I had to tie it all over with string before I dared move it. It contained one egg, which was partly incubated but was quite cold, which would show that the bird had not occupied the nest for some time; and as the ♂ remained in the neighborhood, it would show that the nest was not deserted, but that the ♀ had been killed.

Although it may be known that this bird breeds about Toronto, this is the first authentic report of its nest having been taken.

Coccyzus americanus at Hamilton.—On July 13, at Mountain View Park, Hamilton, I secured a pair (♂ and ♀) of Yellow-billed Cuckoos. They were in a long, low hedge, and were evidently breeding, but, although I searched for some time, I did not succeed in locating the nest.

Picoides arcticus.—On October 19, I collected a beautiful ♀ specimen of the Arctic Three-toed Woodpecker on Wells' Hill, and on Saturday, 21st, Oliver Spanner was given a ♂ specimen, collected in Rosedale.

G. E. ATKINSON.

Coccyzus americanus.—On August 13, found the Yellow-billed Cuckoo, plentiful and breeding; secured three specimens. Also one *Zenaidura macroura* ♀, and *Contopus borealis* ♀ at Queenston.

Contopus borealis.—Toronto, August 25, obtained a very fine ♂ specimen on the Humber River,

Dendroica tigrina.—Toronto, September 3, secured a specimen of this rare warbler on the Sandbar, Ashbridge's Bay.

B. L. NUSSEY.

Tringa maritima.—On October 25, I shot a Purple Sandpiper at Hanlan's Island. It is a fine specimen, and is now in my possession.

Toronto.

JOHN MYERS.

Dragon-fly killed by a Sparrow.—Mr. C. Pickering handed me a specimen of *Anax junius*, with the following note: "Killed by a sparrow (*passer domes-ticus*) on Carlton street, Toronto, this morning, October 10, 1894, while trying to alight on a telephone wire." This is one of the many records we have of the insectivorous habits of the sparrow.

WM. BRODIE.

ENTOMOLOGY.

PLATYSAMIA COLUMBIA NOKOMIS.

BY WM. BRODIE.

In the summer of 1863 I found a bombycid cocoon firmly attached to a twig of a double spruce *Abies nigra* growing in the Township of Whitchurch, York County. It was the first of the kind I had ever seen, and, although it was very different from the usual *Cecropia* cocoon, I thought it might have been made by a starved and diminutive *Cecropia* larva, but as the imago had emerged it was not possible to determine.

In Vol. III., p. 201, of *Canadian Entomologist*, December, 1871, the late G. J. Bowles gave an account of the collecting of larvæ of *P. columbia* by himself and the late Mr. Cowper in the Province of Quebec. He also gives an engraving and Prof. Smith's descriptions of the imago *Columbia* and of the cocoon, which was originally published in the proceedings of the Boston Society of Natural History, March, 1865, but which I had not seen until it was reproduced in the *Canadian Entomologist*. From Prof. Smith's description I was pretty sure the cocoon I found on the double spruce was the cocoon of *P. columbia*. Provancher in Vol. IV. of the *Nataruliste Canadien*, September, 1872, gives a print of Bowle's lithograph of *S. columbia* and some general matter, but adds nothing new.

In the *Canadian Entomologist*, Vol. X., March, 1878, there is a very good coloured lithograph of the larva of *P. columbia* by the late G. J. Bowles and a short paper by the late F. B. Caulfield giving a description of the larvæ. There is also on page 43 an article by C. H. Fernald, in which he gives several food plants, a description of the egg, of the larvæ in the several stages of development, and some valuable general information. Up to this time very little had been published as to the geographical range of the species. From 1875-1880 I received

several parcels of *P. columbia* cocoons from Muskoka, collected near Bracebridge by Capt. James Brodie and Mr. R. Mosey, and I was told they were found on the "wild cherry," (*Prunus virginiana*?) the dry twigs seemed to me. Many of these were destroyed by parasites. The perfect imagoes which emerged were of the dull-coloured southern type, corresponding very well to Smith's description. I used every possible endeavour to get them paired, but failed. The ♀s ovapositioned freely, but, of course, the ova were infertile.

In the spring of 1882 I received a parcel of *columbia* cocoons collected by W. G. A. Brodie near Carberry, Manitoba. They were attached to twigs of the *Elæagnus argentea*, and I was informed the larvæ must have fed on the leaves of this shrub. When the imagoes emerged they differed so much from Muskoka specimens that I fancied there must be a specific difference, and so I sent specimens of the moth and of the cocoons to the late H. Edwards. He did not know *E. argentea* as a food plant of *P. columbia*. He remarked the difference of the northern form sent by me and the usual southern form, and thought, if permanent, it was at least sub-specific; and he suggested that it should be described and named.

Early in 1883 I received a package of cocoons of *P. columbia* and of *T. polyphemus*, collected by W. G. A. Brodie near Pelly, N.W.T. Only one imago emerged from this lot, from a *P. columbia* cocoon, and it differed so very much from the Manitoba form that I considered it a well-marked variety, being much less in size and of much brighter colours, and the boundaries of the colours much more distinct. All these facts and descriptions of the two forms were embodied in a paper which I read before a meeting of the Natural History Society of Toronto, and I also submitted type specimens of the two forms. For the Carberry form I proposed the name *P. columbia nokomis*, and for the Pelly form *P. columbia winonah*. I presented the types, with specimens of the food plant *E. argentea*, to the museum of the society, all of which, I understand, have been lost. The paper also became the property of the society, but was not considered of sufficient importance for publication, although the

proposed names appeared on the list of Canadian insects published by the Society. In the following year I got six cocoons from Mr. Miller Christy, collected between Carberry and Brandon; the imagoes which emerged were of the pure *columbia nokomis* type.

In the fall of 1885 I received from Mr. H. Leigh a lot of *columbia* cocoons, collected somewhere near Birtle, Manitoba, from twigs of the "Wolf Willow," one of the common names given to *E. argentea*, but sometimes given also to *Shepherdia argentea*. Several imagoes emerged, and they were all of the *nokomis* type.

In the spring of 1886 I received a small box by mail containing three specimens of this moth collected by W. A. Ducker, D.L.S., near Pilot Mound, Southern Manitoba. There were two ♀ and one ♂; one of the ♀ had been put in the box alive, and had ovapositioned, but so slow had been the transit that the larvæ had emerged from the ova, and had died of starvation before reaching me. Although very much rubbed they were evidently of the *nokomis* type.

In March, 1887, I received a parcel of galls and cocoons, collected from twigs of the "Wolf Willow" by W. D. Ducker, D.L.S., in the Souris district, and at a point near Moosomin on the line of the C. P. R. These cocoons also gave imagoes of the *nokomis* type.

Early in 1894, I received from Mr. E. Heath, of the Hermitage, Cartwright, Man., a package of cocoons of the usual *nokomis* type, and was informed by that gentleman that the species was not uncommon in his section, and that the larvæ feed on the leaves of *E. argentea*. No imagoes emerged from this lot; they were all destroyed by parasites.

It would appear, then, from these records that the *nokomis* type is generally distributed over the Province of Manitoba, and that the common food plant is *Eleagnus argentea*, and that probably *Shepherdia argentea* (Wolf Willow?) may also be a food plant. I do not know the northern nor the western limit of *E. argentea*, but Mr. Jas. M. Milne, who was on the Government survey, has informed me that he found the shrub on the eighth

base line, which lies to the north of the South Saskatchewan, and as far west as the cactus hills, and there can be little doubt that the range of *P. columbia nokomis* is coterminous with the range of this food plant *E. argentea*.

The food plants of the southern form (*P. columbia*) in Ontario, Quebec and in the State of Maine, so far fairly well identified, are *Prunus virginiana*, *Prunus pennsylvanica*, *Nemopanthes canadensis*, *Kalmia angustifolia*, *Rhodora canadensis*, *Salix* sp., *Abies nigra*, *Larix americana*. None of these are allied botanically to *E. argentea*, but I think it most likely that the larvæ would take very kindly to the leaves of our common *Shepherdia canadensis*.

On comparing a series of specimens of *columbia* with *columbia nokomis*—the Manitoba form—the difference is very obvious in the brighter colors and more sharply defined color areas. This difference may be in some measure from a difference of food, or from the much longer duration of daylight while the larvæ are feeding, or perhaps in part from the lower temperature in winter. And perhaps it may yet be shown that the north and north-west territories are the normal habitat and *nokomis* the normal form of the species, differentiated ages ago from *cecropia* by climatical and other conditions, and that the now southern form is from degenerate stragglers from the north.

The following points of difference may be noted between the *columbia nokomis* form and the *columbia* form, as represented by Ontario specimens, and as compared with Smith's description of *columbia*, parts of which are given in brackets. The standard of color is Ridgway's Nomenclature of Colors.

Antennæ, central shaft, bright reddish brown; pectinations, darker (black); palpi, light liver brown (dark maroon brown); dorsum of thorax, bright reddish liver brown, with a posterior pure white band (dark maroon with a short, grey band); under side of thorax, reddish liver brown (black); legs, reddish brown, pile darker (black, slightly tinged with brownish); abdomen, with alternate annulations, bright liver brown and pure white (black and dirty white).

Primaries, above, with a rather sharply elbowed pure white

line (greyish white); the middle area of the wing is bright reddish liver brown (dark brown), and contains a central ovate white spot (triangular); this bright colored area is separated from the costa by a moderately wide longitudinal greyish stripe.

Secondaries, with a large white spot at the shoulder (small, dirty white); the central area, bright reddish liver brown (dark brown), having a central white spot, which varies from kidney form to curved pear form, and varying much in size, but always larger than the corresponding spot on the primaries; but no sexual difference could be observed, either in the size or in the form, of these central white spots.

The primaries beneath have the space from the shoulder to the median white cross band of a maroon brown (black), and generally the under side of the wings of *columbia nokomis* is brighter colored than that of *columbia*.

As I have not seen but one specimen of the *columbia winonah* type, little need be said about it. My specimen may have been representative of an extreme northern group, or it may have been only a strongly marked specimen of *columbia nokomis*.

THE BEE-EATING HABIT OF *PHYMOTA EROSA*.

BY WM. METCALFE.

This fall at Grimsby, Ont., *P. erosa* was very abundant. I first noted it July 24th, on which date a specimen of the larvæ was taken while in the act of feeding on the juices of *tachina* sp. From August 1st till towards the end of September it was exceedingly plentiful on various species of *Solidago*. Its destructiveness to the honey bee, *Apis mellifica* must be a menace to apiarists. I generally had a half day's collecting each week, and on these occasions the number of dead bees hanging on the flowers and lying on the ground was startling. Along a ditch about one hundred and fifty yards in length, fringed with

solidagos, I have frequently counted, at one time, thirty-five bees being eaten by the bugs. With the assistance of *Reduvius raptatorious* the *erosa* must have kept the hives in the neighborhood rather thinly populated. Beside the usual variety of bees, their prey included over fifty species of insects. It speaks well for their courage when such powerful hornets as *Ammophila luctuosa* and *A. conditor* are numbered with the victims. One rather amusing habit they had was the way in which they kept watch on the curious observer. In only one instance did I see an insect captured; it was a specimen of *Agrotis subgothica*. The bug seized the moth by the front of the head and plunged its proboscis into the thorax—Mr. Agrotis fluttering and beating about on the blossom for nearly a minute before death relieved his sufferings. Appended is a list of the prey of *P. erosa* and a shorter one of that of *R. raptatorious*:—

LIST OF THE PREY TAKEN BY *P. EROSA* LINN.**Coleoptera.**

Chauliognathus pennsylvanica De Geer.
Cyllene robiniae Forst.
Diabrotica 12-punctata Oliv.
Mordellistena vitis Lec.

Hymenoptera.

Apis mellifica B. Drury.
Apis mellifica Syr Drury.
Bombus pennsylvanicus De Geer.
Andrena vicina Smith.
Andrena sp.
Halictus pilosus Smith.
Halictus lævissimus Smith.
Halictus parallelus Say.
Agapostemon radiatus Say.
Ceratina dupla Say.
Vespa vulgaris Linn.
Polistes sp.
Odynerus capra Sauss.
Philanthus solivagus Say.
Philanthus bilunatus Cress.
Cerceris nigrescens Smith.

Stigmus fraternus Say.
Oxybelus brodiei Prov.
Crabro 6-maculatus Say.
Thyreopus laeipes Smith.
Lyroda subita Say.
Larra abdominalis Say.
Pompilus cylindricus Cress.
Ammophila luctuosa Smith.
Ammophila conditor Smith.
Smiera canadensis Cress.
Ceratosoma fasciata Cress.
Pimpla pedalis Cress.
Lampronata americana Cress.

Lepidoptera.

Pieris rapæ Linn.
Colias philodice Godt.
Chrysophanus hypophleas Bd.
Phamphila (two species).
Agrotis subgothica Haw.
Agrotis volubilis.
Nephelodes minians Guen.
Orthosia ferrugineoides Guen.
Plusia precatationis Guen.

Diptera.

Anthrax fascipennis Say.
Syrirta pipiens Macq.
Sphærophoria cylindrica Say.
Helophilus similis Macq.
Eristalis flavipes Walk.

Eristalis tenax Walk.
Gymnosoma occidua Walk.
Ocyptera lateralis Harris.
Tachina (six species).
Sarcophaga cadaverina Desv.
Musca cæsar Linn.
Scatophaga stercoraria Linn.

LIST OF PREY TAKEN BY *R. RAPTORIUS* SAY.**Coleoptera.**

Megilla maculata De Geer.
Hippodamia 13-punctata Linn.
Coccinella 9-notata H.
Chauliognathus pennsylvanica De Geer.

Hymenoptera.

Apis mellifica B. Drury.
Andrena vicina Smith.
Philanthus bilunatus Cress.
Thyreopus latipes Smith.

CANADIAN GALLS AND THEIR OCCUPANTS.

BY DR. WM. BRODIE.

DIPLOSION MONARDI, N. S.

THE galls appear like swellings on the flowering branches of *Monarda fistulosa*, from 10 to 22 mm. long, usually a little curved and retaining the quadrangle form of the branch. The average of the side of the square of twenty of the largest was 3 mm., and of the branches below the galls 1.5 mm.

This gall is usually found on plants growing in open woods; it is very rare on robust plants growing on exposed situations.

The walls of the gall are hard and woody but thin; the interior is a soft, pith-like substance, through which the larva tunnels freely, and on which it feeds. I have found but one *Diplosis* larva to a gall. The larvæ are of a pale straw color, and when mature the imagoes escape through a small circular hole at the upper end of the gall.

A lot of over 100 galls was collected from several localities near Toronto, from April 1 to April 25, 1893. These gave out producers from June 18 to July 6, 1893. From June 4 to June 18, 1893, several specimens of a species of *Torymus* emerged, and from June 18 to June 24, 1893, numerous small parasites of two species emerged.

The producer of this gall, for which I propose the name *Diplosis monardi*, is not altogether of the true *Diplosis* type. In the venation of the wings, and in some other particulars, it nears the *Lasioptera* type.

The parasites, I believe, are undescribed species.

These galls may be collected in the fall season as soon as the leaves begin to drop, as keeping them in a dry jar over winter does not seem to injure the larvæ, but it is best to collect in the spring season.

GALLS ON PLANTS OF THE GENUS *RUBUS*.

DIPLOSIS FARINOSO, O.S.

“ROUNDED, woody swellings at the base of the leaflets, or on the mid-rib, of the common blackberry contains red larvæ.” (O.S.)

Galls on leaf petioles of *Rubus villosus*, usually on the lower side of petioles at the base of leaflets, occasionally entirely surrounding petiole and extending up mid-vein; rarely on side veins. In a collection of twenty-seven galls, from several localities, twenty-one were on petioles at the base of leaflets, five on the upper half of mid-veins, and one on side vein.

Galls usually roughly spherical, varying to ovate and cylindrical. The largest spherical gall I have yet found measured 10 mm. in diameter. An average of fifty of the most spherical was 6 mm. diameter; an average of twenty-five of the more ovate was 6 mm. x 8 mm.; an average of twenty-five of the largest and most cylindrical was 8 mm. x 15 mm.

Galls collected August 28, 1892, were immature, soft and juicy, the larvæ minute, closely confined in their cells. When mature the galls are of a dark straw color, inclining to greyish, surface roughened with rather deep irregular cracks. The interior is uniformly soft, spongy and toughish, becoming rather friable, of a light brown color, becoming darker with age. Each gall contains from one to fifteen cells. When mature the larvæ are still closely confined in their cells, and are of a bright straw color.

These galls are usually found on diminutive plants, growing in the shade of open woods and partially hidden by ferns and herbaceous plants. I have not yet found them on robust plants growing on exposed situations.

A collection of galls was made October 8, 1893. On May 1, 1894, the larvæ were of a pale straw color; on May 29, 1894, they were still pale, and were beginning to pupate. From June 13 to June 21, 1894, *Torymus* parasites emerged; from June 18 to June 23, 1894, producers emerged; from June 18 to July 1, 1894, small parasites (*pteromalus*) emerged; from June 21 to July 5, 1894, *Inquilines* emerged.

There is no doubt but this is Osten Sacken's gall (*C. farinosa*), but his description is very inaccurate. This gall is not "woody"; it is not at all like a "swelling"; it is much more like an excrescence, and the larvæ are not red.

GENERAL NOTES.

Argynnis bellona Fabr.—I captured a specimen of this rare butterfly May 13th, 1894, and another August 19th at Grimsby, Ont.; in the summer of 1892 I collected a specimen at Toronto.

Lycaena comyntas Godt. is very scarce in the vicinity of Toronto, and at Grimsby also; I have a Toronto specimen, dated July 25th, 1893, and a Grimsby specimen for May 13th, 1894. I might also mention the capture of two fine specimens of *Satyrus alope* Fabr. (Canadian form) at Grimsby. I know of only one being taken at Toronto in the last three years.

Ancyloxypha numitor Fab., that beautiful little skipper, was quite common at Grimsby. My first capture was made on the 17th of June; it then disappeared and became rather common for about ten days between August 10th and 20th.

I was fortunate enough to secure two individuals of that lovely moth, *Utelheisa bella* Linn., July 31st, at Grimsby.

Toronto.

W. METCALFE.

FISH-KILLING HABIT OF *BELOSTOMA GRISEA*.

I found this water bug, *B. grisea*, in our millpond yesterday, August 28, 1894, firmly fastened on the back of a sucker about five inches in length. The fish was propelling itself on the surface of the water with the fore fins, not using the tail at all. When they came to the shore I caught and separated them. I kept the bug, and on returning the fish to the water it struggled away on its back at the surface of the water as if paralyzed, and in a dying condition.

Milneford.

C. S. MILNE.

STAINING OF WINGS OF INSECTS.

At the request of Dr. Brodie a method of staining the veins of the wings of certain insects was devised as follows: Place the whole insect in a strong alcoholic solution of fuchsin, and allow it to remain there for forty-eight hours. Then transfer the insect to water, with a pair of fine forceps and wash it until no more colour comes away, changing the water if necessary. While the washed insect floats in clear water, slip a microscope slide under it; raise the slide, holding the insect on it with a fine needle; separate the wings from the body with a fine scapel and remove the body. With a drop or two of clear water on the slide, float the wings into any desired position, keeping them flat and unwrinkled, taking care to have no bubbles under them. Remove any excess of water with blotting paper, and allow the wings to dry. Then place a drop of thick Canada balsam near them, and heat the slide over a spirit or gas flame. Tilt the slide so that the now liquified balsam flows over the wings; lower a cover-glass gently into position and allow the preparation to cool. On examination, the veins will be found red, the depth of the colouring varying with the length of time of staining, the thickness of the veins, etc. The colour is well retained so far as has been tried, and successful photographs have been made. The technique of this method is very simple, but the various steps mentioned, or their equivalents, must be carefully prepared, in order to obtain good results.

Toronto.

DR. H. W. HILL.

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